Spokane Plan Commission Agenda

June 8, 2016
2:00 PM to 5:00 PM
City Council Chambers

TIMES GIVEN ARE AN ESTIMATE AND ARE SUBJECT TO CHANGE

	Public Comment Period:	
3 minutes each	Citizens are invited to address the Plan Commission on any topic not on the agenda	
	Commission Briefing Session:	
2:00 - 2:15	1) Approve May 25, 2016 Meeting Minutes	
	2) Potential Disqualification of Plan Commissioner for an Upcoming Hearing (in accordance with §10.12 of the Spokane Plan Commission Rules of Procedure)	John Dietzman
	3) City Council/Community Assembly Liaison Reports	
	4) President Report	Dennis Dellwo
	5) Transportation Subcommittee Report	John Dietzman
	6) Secretary Report	Lisa Key
	Workshops:	
2:15 - 3:15	1) Comp Plan Amendment: Morningside File Z1500084COMP	Tirrell Black
3:15 – 4:15	2) Comprehensive Plan 2017 Update-Chapters 1&2; Landuse, Chapter 3	Kevin Freibott
	Adjournment:	
	1) Next Plan Commission meeting will be on June 22	

The password for City of Spokane Guest Wireless access has been changed:

Username: COS Guest
Password: c4L!dXm%

Disclosure Statement

Dietzman **Involvement With Proponents and Opponents of Morningside Zoning Proposal**

I have been a resident of the North Indian Trail Neighborhood for 16 years. In about 2002, I began attending the Neighborhood Council meetings regularly. I became a member of the Neighborhood Specific Plan Stakeholder Committee. I chaired the successful effort to create a Center Plan for our Neighborhood. Our Center Plan Stakeholder Committee had businessmen, two churches, District 81, a real estate agent, individual homeowners, and representatives from all residential and commercial developers active in our area.

Harlan Douglas, the original owner of Windhaven (former name of the Morningside property), was represented and a number of parcels in that development were rezoned in 2007 as part of the Center Plan process. All the parcels along Barnes Road had split zoning, part RSF and part RTF, and these were rezoned to all RTF. The parcels along the east property line adjoining the Lusitano Apartment Complex had split zoning, mostly RSF and a sliver of RMF, and these were rezoned to all RSF. I have had dealings with the current owner, Harley Douglas, on another issue, but none concerning Morningside.

I served two terms as Co-Chairman of the North Indian Trail Neighborhood Council ending in 2011, and remained an Officer in the role of Past-Chairman until 2013 when I resigned upon becoming a member of the Plan Commission. I continued to regularly attend Neighborhood Council meetings until December 2015 when I received notice of the Morningside Comp Plan Amendment application. I have not attended any Neighborhood Council meetings since that time.

My email address has been public knowledge for many years due to my Neighborhood Council involvement. As a result I have received numerous emails concerning Morningside but have responded to only one. That was the first one I received on 12-8-15. It was from the current Neighborhood Council Chairman, Terry Deno, and it was an alert that Comp Plan Amendment Applications had been submitted that would affect the neighborhood. I went to the City website and extracted posted information about the proposals, and then replied with a short summary of the possible range of increased number of housing units could be involved. I recommended that the Neighborhood Council leadership diligently study the documents on the website, and stated that I could not be involved with them on this issue because of my membership on the Plan Commission.

I also have been approached by numerous friends and neighbors who have asked my opinion or offered their opinion about the Morningside proposal. I have explained to them the Comp Plan Amendment process and the requirement that Plan Commission members must remain neutral on an such an issue until all the written and oral arguments, pro and con, have been made available to all the Plan Commissioners, and only then do we deliberate together, and decide our majority position on the issue. I have asked these people to submit written comments to Tirrell Black or give oral testimony at the upcoming hearing.

I have diligently reviewed the written testimony, and have not found any facts or opinions, that I read in the emails that were sent to me or heard from individuals, that are not contained in the written testimony currently available to all the Plan Commissioners. I have retained copies of all the emails and will put them into the record if requested.

I have no employment, business, or property ownership involvements which would create a conflict of interest in this case. I feel that I have as good an understanding of the issues surrounding this case as any member of the Plan Commission, including the need for businessmen to strive to maximize the return on their investment, the benefit of improving the viability of our struggling Sundance Plaza Shopping Center by having a large number of new customers living across the street, the problems of increased traffic on Indian Trail Road due to a significant influx of new residents, the low likelihood of obtaining funding to widen this road in the foreseeable future, the concerns of existing residents about the negative impacts of high density development at the edge of town, and their fears that the special single family residential character of this neighborhood will be destroyed. I want to be included in this process, because I believe I can add value to our deliberations.

However, I am aware that it may appear to some that my previous involvement in the North Indian Trail Neighborhood Council, which is strongly opposing this proposal, might make me incapable of making an objective evaluation of the pros and cons of this proposal. I feel I can, so I am not voluntarily recusing myself. However, if a majority of Plan Commission members feel I should be disqualified, I will accept their decision gracefully.

John Dietzman

6/5/16

Spokane Plan Commission
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June 8, 2016

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1) Z1500084COMP Application & Maps
2) SEPA Checklist
3) Windhaven Apartments DRAFT Traffic Impact Analysis
4) Micro-Simulation Traffic Analysis
5) Morningside Investment LLC Agency Comments
6) District 81 Capacity Letter
7) Plan Commission Public Comment Memo
8) Comprehensive Plan Policy for Discussion

Comprehensive Plan 2017 Update-Chapters 1 & 2; Landuse, Chapter 3

1) Part I-Cover letter
2) Part II-Chapter 1- Introduction (TRACKED CHANGES)
3) Part III-Chapter 1- Introduction (FORMATTED)
4) Part IV-Chapter 3-Land Use (TRACKED CHANGES)
5) Part V-Chapter 3-Land Use (FORMATTED)
6) Part VI-Focus Group Members

City of Spokane

Planning Services Department

General Application

DESCRIPTION OF PROPOSAL:

This proposal requests changes to the land use designation of the Comprehensive Plan from R4-10 designation to partially R15-30 and R10-20 designations, and change the current RSF zone classification to RMF and RTF classification for 260 single family parcels and related tracts.

ADDRESS OF PROPOSAL: (if not assigned yet, obtain address from Public Works before submitting application)

The proposal affects 260 parcels within the Windhaven First Addition PUD within the North Indian Trail neighborhood. Addresses are between the W.5400 and W.6000 blocks of Youngstown Ln, Yorktown Ln, Morgantown Ln, Georgetown Ln, and Jamestown Ln.

APPLICANT:

Name: Morningside Investments, LLC

Address 815 E. Rosewood Avenue, Spokane, WA 99208

Phone (home): N/A Phone (work): (509) 489-4260

Email address: N/A

PROPERTY OWNER:

Name: Morningside Investments, LLC

Address: 815 E. Rosewood Avenue, Spokane WA 99208

Phone (home): N/A Phone (work): (509) 489-4260

Email address: N/A

AGENT: J.R. Bonnett Engineering

Name: Jay Bonnett

Address: 803 E. 3rd Avenue, Spokane WA 99202

Phone (home): NA Phone (work): (509) 534-3929

Email address: jbonnett1@jrbonnett.com

ASSESSOR'S PARCEL NUMBERS:

All parcels and tracts within the Windhaven First Addition, PUD, except lots 1-8 Block 4, lots 1-13 Block 5, lots 1-5 Block 6.

LEGAL DESCRIPTION OF SITE:

Replat of Blocks 274, 275, 312, 313, 338, 339, 376, 377 and a portion of Blocks 273, 314, 337, & 378 of the Final Plat Prosperity Acres. Located in the NW ¼ Sec. 22, T26N, R42 E.W.M., City of Spokane, WA

SIZE OF PROPERTY:

45.5 acres.

LIST SPECIFIC PERMITS REQUESTED IN THIS APPLICATION:

Comprehensive Plan/Land Use Amendment. Change the existing R4-10 designation to become partially R15-30 and R10-20 designations. Rezone. Change the existing RSF to RMF and RTF

SUBMITTED BY:

Jay Bonnett

☐ Applicant ☐ Property Owner ☐ Property Purchaser ☒ Agent

In the case of discretionary permits (administrative, hearing examiner, landmarks commission or plan commission), if the applicant is not the property owner, the owner must provide the following acknowledgement:

I, Moraingside Investments LLC By Doyle P.O.A. For, owner of the above-described property do hereby authorize Jay Bonnett to represent me and my interests in all matters regarding this application.

ACKNOWLEDGMENT:

STATE OF WASHINGTON)
) ss.
COUNTY OF SPOKANE)

On this 23 day of October, 2015, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared Harley C. Douglass, to me known to be the individual that executed the foregoing instrument and acknowledged the said instrument to be free and his/her free and voluntary act and deed, for the uses and purposes therein mentioned.

Witness my hand and official seal hereto affixed the day and year first above written.

SUSAN M ANDERSON
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
OCT. 25, 2016

Susan M Anderson

Notary Public in and for the State of Washington,
residing at Spokane

Windhaven First Addition P.U.D.
Comprehensive Plan Amendment

Application

1. GENERAL QUESTIONS

1a. Describe the nature of proposed amendment and explain why the change is necessary.

This amendment proposes to change to the subject property's Land Use designation from an R4-10 designation to a partial R10-20 designation and an R15-30 designation, and change the current RSF zone classification to a partial RTF and RMF zone classification. The subject property currently consists of 286 platted lots on approximately 49.48 acres. Property affected by this application consists of 260 platted lots on approximately 45.5 acres. (See attached EXISTING AND PROPOSED LAND USE DESIGNATIONS map).

The subject property is located within close proximity to an existing shopping center within a CC Core Land Use designation and a CC2-NC zone classification. It is also directly adjacent to an existing multi-family housing facility within an R15-30 Land Use designation and an RMF zone classification. According to Chapter 3 of the Comprehensive Plan, the Neighborhood Center (NC) designation encourages greater intensity of development to promote Land Use efficiency. The most dense housing should be located within or around the Neighborhood Center to provide economic support to the businesses within the Center. Furthermore, housing density within the Neighborhood Center should be about 32-units/acre at the core and up to 22-units/acre at the perimeter. Currently, there are no housing units within the designated CC2-NC zone boundaries (the core) and the RMF housing developments directly adjacent to the Neighborhood center are underutilized and do not meet the density goal of the comprehensive plan . This amendment promotes efficient use of land by offering increased density at the core boundary.

1b. How will the proposed change provide a substantial benefit to the public?

A primary goal of the Comprehensive Plan is to reverse the increasing decline in personal income and property valuations relative to unincorporated Spokane County. Its policies attempt to increase disposable income by creating employment opportunities within neighborhoods and employment centers. To this end, a Neighborhood Center was planned within the North Indian Trail neighborhood to create an urban area with the goal of attracting livable wage jobs. Success of the Neighborhood Center would be dependent on the promotion of high-density urban development on lands nearest the center to create a pedestrian-friendly community and avoid leapfrog development and segregated land uses.

Since most of the land surrounding the Neighborhood Center has already been developed in relatively low-density housing, this amendment would contribute to the quality of life in this area by supplementing the existing underutilized multi-family housing developments in the area and providing a significant population growth mechanism within walking distance of the existing Neighborhood Center. The increased population would help support the Neighborhood Center and would have a positive influence on increasing investment and tax revenues as deemed necessary by the Comprehensive Plan to attract higher incomes to the neighborhood.

1c. Is this application consistent or inconsistent with the Comprehensive Plan goals, objectives and policies?

Yes, the proposal is consistent with the applicable goals and policies of the Comprehensive Plan.

1d. Is this application consistent or inconsistent with the goals and policies of state and federal legislation, such as the Growth Management Act (GMA) or environmental regulations?

Yes, development alternatives related to this proposal are consistent with the applicable planning goals and policies of the GMA, RCW 36.70a.020. The following GMA planning goals are supported:

Goal (1) Urban Growth - It provides for development in an urban area that has adequate public facilities and services.
Goal (2) Reduce Urban Sprawl – This project would develop vacant land near the perimeter of a designated Neighborhood Center where higher density housing is desired and therefore, would not contribute to urban sprawl.
Goal (3) Transportation – This development would support and likely increase ridership of the existing public transit system along Indian Trail Road. Public transit bus stops are within walking distance of the development. The project is located along designated pedestrian and bicycle routes and supports the goals of the regional Metropolitan Transportation Plan of having efficient intermodal transportation service with safe routes to and from transit stops. The Plan supports development near town centers to encourage walking and biking to work and on errands as opposed to driving.
Goal (4) Housing - This proposal will provide affordable housing to various economic segments of the population, promote a variety of multi-family housing types, and will not displace existing housing stock.
Goal (5) Economic Development - Economic development is consistent with the adopted Comprehensive Plan by providing opportunities for expansion of existing businesses and recruitment of new businesses.
Goal (6) Property Rights – Private property will not be taken for public uses as it relates to the development of this property.
Goal (7) Permits – This planning goal relates to processing state and local permits in a timely and fair manner.
Goal (8) Natural Resource Industries – No natural resources or related industries will be adversely affected by this proposal. This property does not produce agricultural or timber products.
Goal (9) Open Space and Recreation – The subject property is surrounded by developed land. Currently, paved streets, sidewalks and public utilities consistent with urban housing developments exist on the property. As such, no wildlife habitat will be adversely affected. No designated open spaces or recreational areas will be displaced by this proposal. Two city parks (Pacific Park and Meadowglen Park), an elementary school with playgrounds, School District 81 ball fields and Meadowglen Conservation Area are in close proximity to the property.
Goal (10) Environment – Groundwater will be protected through stormwater control and treatment measures in accordance with all local and state regulations. Air quality impacts will be consistent with normal residential levels of emissions. All qualifying vehicles within the city must be inspected and tested to ensure compliance with federal clean air act requirements and to protect human health and the environment.
Goal (11) Citizen Participation – The North Indian Trail Neighborhood Council is purposed to improve and preserve the quality of life in North Indian Trail Neighborhood. To that end, they were involved in the planning process of the Neighborhood Center and other surrounding land use designations of the comprehensive plan. Since many of the properties with high density housing designations were developed with no residential units or lesser density than allowed, the neighborhood should be in favor of this development to supplement lost residential opportunities near the core of the Center that is essential for its economic health.
Goal (12) Public Facilities – Appropriate assessments of the public utilities will be made during design phases of the development. Development will proceed only upon gaining approval from the City of Spokane for adequate water, sewer and transportation facilities.
Goal (13) Historic Preservation – No historic or archaeologic significance has been associated with this property, therefore, no adverse impacts are anticipated.
Goal (14) Shorelines – The subject site is not within close proximity to any bodies of water, therefore, this proposal will not have adverse effects to shorelines.

The GMA puts an emphasis on: Urban Growth, “Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner”; and, Reduce Sprawl, “Reduce the inappropriate conversion of undeveloped land into sprawling, low density development.” Available land in and around the Neighborhood Center and opportunities for higher density development is rapidly disappearing.

1e. Is this application consistent with the Countywide Planning Policies (CWPP), the comprehensive plans of neighboring jurisdictions, applicable capital facilities or special district plans, the Regional Transportation Improvement District, and official population growth forecasts?

Yes, the proposal is consistent with Countywide Planning Policies by using land efficiently and does not conflict with the comprehensive plans of neighboring jurisdictions. No known capital facilities, special district or regional transportation projects will be adversely effected by this amendment.

1f. Are there any infrastructure implications that will require financial commitments reflected in the Six-Year Capital Improvement Plan?

According to the Citywide Capital Improvement Program, no six-year capital projects were identified in the area of the subject property. Standard GFC and impact fees will be collected from the developer at the time of permit application. Impact fees are commonly used to aid in meeting capacity related Growth Management Act concurrency requirements. These fees are assessed to developments to pay proportionate costs associated with the service area-wide water, sewer and transportation needs for new improvements created by the new development. It is anticipated that several million dollars of GFC and Impact fees will be collected from the developer to pay for infrastructure upgrades. No other City financial commitments are anticipated.

1g. Will this proposal require an amendment to any supporting documents, such as development regulations, Capital Facilities Program, Shoreline Master Program, Downtown Plan, critical areas regulations, any neighborhood planning documents, or the Parks Plan?

No amendments to development regulations, Capital Facilities Program, Shoreline Master Program, Downtown Plan, critical areas regulations or the Parks Plan are anticipated. Planning documents for the North Indian Trail Neighborhood plan may need to be updated to include this proposed zoning change.

1h. If this area is to modify an Urban Growth Area (UGA) boundary, please provide a density and population growth trend analysis.

Not Applicable. This proposal is entirely within the UGA and does not intend to modify the boundary.

2. FOR TEXT AMENDMENTS

Not Applicable

3. FOR MAP CHANGE PROPOSALS

3a. Attach a map of the proposed amendment site/area, showing all parcels and parcel numbers.

Please see the attached Parcel Map 1 and Parcel Map 2 of the subject site.

3b. What is the current land use designation?

The current land use designations are as follows:

R10-20 along portions of the south boundary along Barnes Road.
R4-10 for the remaining area within the property boundaries.

3c. What is the requested land use designation?

The requested land use designations for the site are R10-20 and R15-30.

3d. Describe the land uses surrounding the proposed amendment site (land use type, vacant/occupied, etc.)

Land to the west, north and south of the subject property is designated as R4-10 and is currently occupied by mostly single-family residences with some pockets of two-family duplexes.
Portions of the land to the south of the subject property are designated as R10-20 and are currently occupied by mostly two-family duplexes with pockets of small multi-family units.
Land to the southeast of the subject property is designated as Center and Corridor Core (CC Core) and is currently occupied by commercial uses, such as, grocery stores, retail stores, restaurants, banks, etc. No residential living units have been developed within the designated CC-Core area.
Land to the east of the subject property is designated as R15-30 and is currently occupied by multi-family dwellings.

Most of the developed land designated as R10-20 and R15-30 in this area is underutilized. Land designated for high density housing (approximately 14.2 acres) within the Neighborhood Center has already been developed into commercial uses, therefore, leaving no future opportunities for increased density. Similarly, at the perimeter of the Neighborhood Core, much of the land designated for higher density housing has already been developed to density levels much lower than allowed by the zoning regulations and anticipated for support of the Neighborhood Center. (See Attached EXHIBIT – EXISTING MULTI-FAMILY LAND USE UTILIZATION @ NEIGHBORHOOD CENTER).

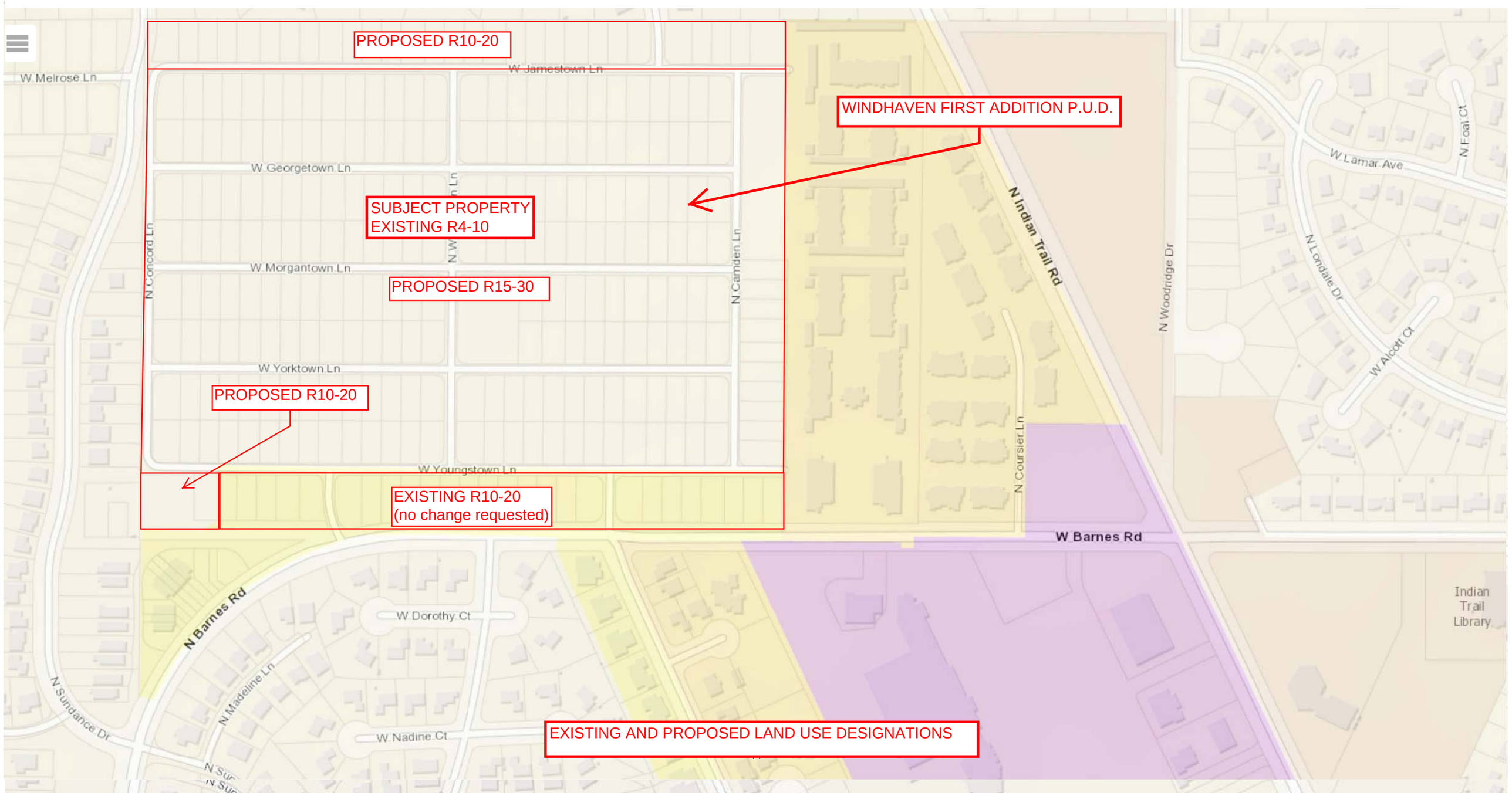
Windhaven First Addition, P.U.D Comprehensive Plan Amendment Application

General Question 1c. Is this application consistent or inconsistent with the Comprehensive Plan goals, objectives and policies?

Spokane Comprehensive Plan Goals, Objectives and Policies	Application Discussion
LU 1.1 Neighborhoods	The developed project could include a variety of multi-housing types including townhomes, zero lot-line and apartments. The project is located within a short walking distance of an elementary school, parks, public library, shopping, and public transit system.
LU 1.3 Single Family Residential Areas	Developable land in the Indian Trail area is significantly diminishing. Opportunities for additional multi-family projects near the center are few. Single-family residential neighborhoods are protected when placing higher intensity land uses near centers.
LU 1.4 Higher Density Residential Uses	This project is adjacent to an existing neighborhood center that does not contain any multi-family housing within its core. The proposed higher density housing supplements underutilized developed land within and around the core and is a critical component of a center. The target density near the boundaries of the center is 15-30 units per acre.
LU 1.12 Public Facilities and Services	Prior to development of the property, public facilities, including fire protection, police protection, parks and recreation, libraries, public sewer, public water, solid waste disposal and recycling, transportation and schools will meet the City's level of service standards.
LU 2.1 Public Realm Features	It is envisioned that the project will be developed in a similar fashion to other specific projects by this developer within the city that are aesthetically pleasing and blend in to the adjacent developments. Regularly maintained, attractive landscaping, pedestrian walks, recreational amenities and connections to public and private places will be provided.
LU 2.2 Performance Standards	Development of the project will be in accordance with all local, state and federal design standards that ensure compatibility with the surrounding land uses.
LU 3.1 Coordinated and Efficient Land Use	This project offers land use efficiency in an area where adequate services and facilities are located.
LU 3.2 Centers and Corridors	This project is located at the perimeter of the designated neighborhood center around which growth is focused. It is presumed that the neighborhood center was a result of neighborhood planning that would rely upon residents living in variety of housing types including multi-family dwellings. The most dense housing should be focused in and around the neighborhood center. Density of housing within the core should be 32-units per acre and up to 22-units per acre at the perimeter.

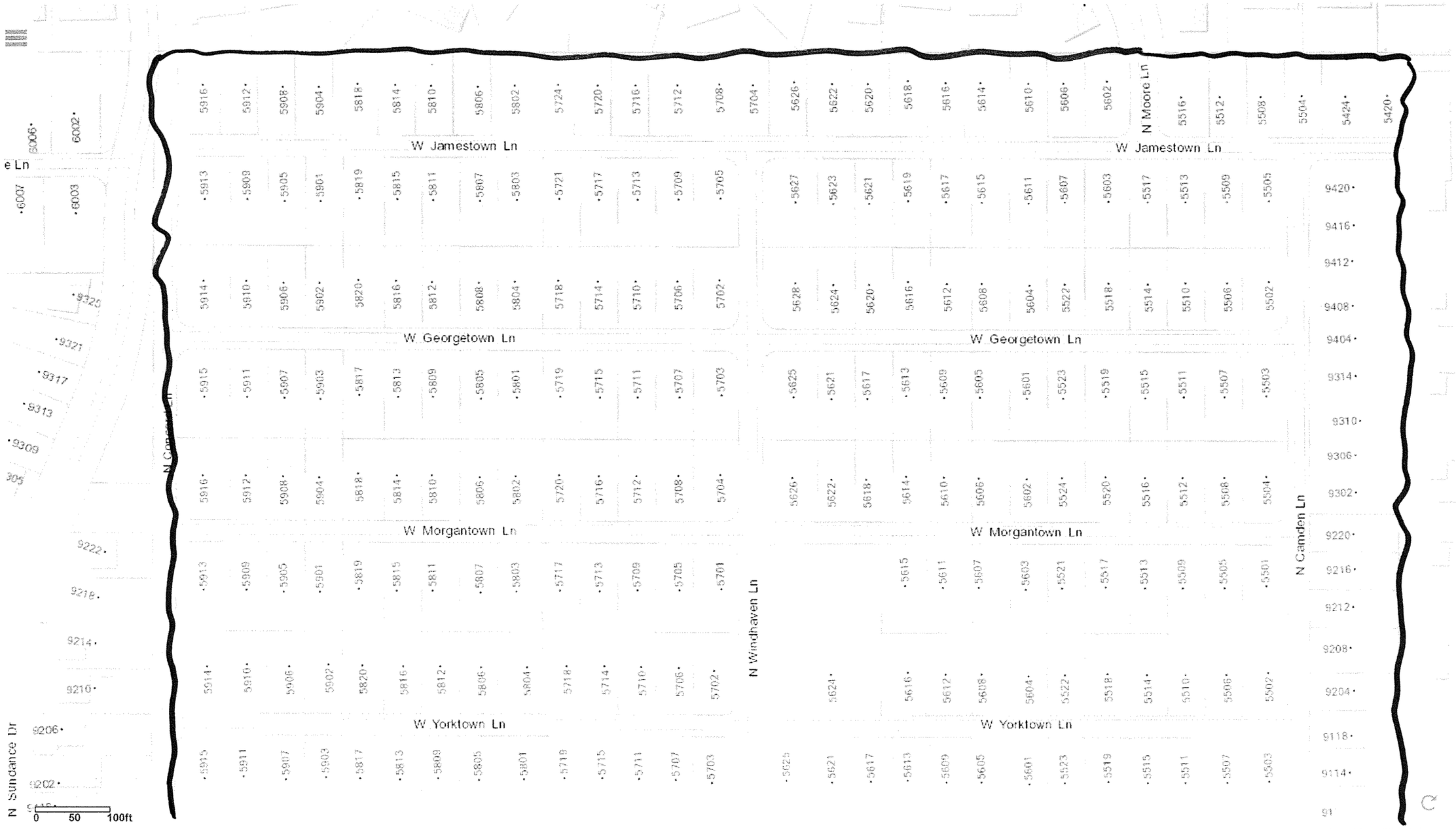
LU 3.3 Planned Neighborhood Centers / LU 3.4 Planning for Centers and Corridors/ LU 3.6 Designate the Seven Neighborhood Centers	The location of the Indian Trail and Barnes neighborhood center (one of seven neighborhood centers within the city) was chosen based on: existing and planned density; amount of commercial land needed to serve the neighborhood; and transportation capabilities including public transit. While the majority of the land within and around the center has been developed, no multi-family housing exists within the core and other designated multi-family housing developments at the perimeter do not meet target densities - resulting in a need for more near the core.
LU 3.11 Compact Residential Patterns	The goal is to allow more compact, affordable housing in all neighborhoods, including townhouses and rowhouses. These dwellings could mark a transition between the large single family lots and the proposed multi-family dwellings.
LU 4.1 Land Use and Transportation/ LU 4.2 Land Uses That Support Travel Options/ LU 4.4 Connections	The project is located near an existing public transit stop, designated bicycle routes and pedestrian paths. The project will provide easy access to support alternative transportation modes. Multi-family housing located near the neighborhood center provides opportunities for people to walk to work, shopping, dining, and other services to reduce automobile trips.
LU 5.1 Built and Natural Environment/ LU 5.2 Environmental Quality Enhancement	Development related to this project will not adversely impact the environmental quality of the area beyond normal residential-type noises and emissions. All parking areas will be paved and undeveloped areas will be attractively landscaped, therefore minimizing any dust related air quality concerns. Stormwater will be properly contained and disposed of in accordance with all local, state and federal regulations, therefore minimizing groundwater quality concerns. The property is located near a major arterial with only commercial and multi-family developments in between. Also, on-site parking will be provided throughout the project. The existing single family developments in the area should not be negatively impacted by project-related traffic or parking within the neighborhoods.
LU 5.3 Off-Site Impacts	The property is located near a major arterial with only commercial and multi-family developments in between. Also, on-site parking will be provided throughout the project. The existing single family developments in the area should not be negatively impacted by project-related traffic or parking within their immediate neighborhoods.
LU 5.4 Natural Features and Habitats	The property within this development has already been developed with streets, sidewalks, lighting and utilities. As such, no environmentally significant natural features or wildlife habitat will be disrupted by this proposal.
LU 6.5 Elementary School Location	The subject site is within safe walking distance of Woodridge Elementary school.

TR 1 Overall Transportation	This proposal supports the overall goal of promoting alternative modes of transportation and reducing dependency on automobiles. By locating higher density housing near Neighborhood Centers, the likelihood of pedestrian and bicycle travel will increase. The increased density will also support the existing public transit system that averaged only 10 and 6 boardings per day at the two nearest stops in 2014.
TR3.1 Transportation and Development Patterns	This proposal would utilize the City's existing transportation system and infrastructure and would reduce sprawl.
TR3.2 Transportation and Development Patterns	As previously discussed, the proximity of this development creates opportunities for the residents to walk or bicycle to the Neighborhood Center for their daily needs. The intent of the Neighborhood Center is to attract neighborhood residents, not to draw people from outside the neighborhood.
TR3.4 Increased Residential Densities	The higher density of this development would promote the efficiency of alternative transportation modes.
TR3.5 Healthy Commercial Centers	The increased population near the Neighborhood Center would help keep it financially healthy and maintain or increase the City's commercial tax base. The additional residents would also help attract new businesses that would provide beneficial services and employment opportunities to all the residents in the Indian Trail neighborhood.
TR4.4 Arterial Location and Design	This project is located near and would utilize the existing arterial street system. No new roadways would be constructed.
TR4.6 Internal Connections	The multi-family community would be provided with efficient transportation circulation with multiple connections to the public streets, school routes, pedestrian and bicycle routes.
TR5.2 Neighborhood Transportation Options	This project would promote the desired transportation alternatives within the neighborhood.
TR 6 Environmental Protection	Development of this proposed property would increase density on land that has already been developed for single family use. All stormwater runoff will be contained and disposed of on site without any adverse impact to the surrounding environment. No new paved roadways will be created by this proposal. The site will be well vegetated after construction to minimize negative environmental impacts of transportation.


PROPOSED R10-20
W Jamestown Ln
W Melrose Ln
WINDHAVEN FIRST ADDITION P.U.D.
W Georgetown Ln
SUBJECT PROPERTY
EXISTING R4-10
N Concord Ln
N Camden Ln
N Indian Trail Rd
N Woodridge Dr
W Lamar Ave
N Foal Ct
N Londale Dr
W Alcott Ct
W Morgantown Ln
PROPOSED R15-30
W Yorktown Ln
PROPOSED R10-20
N Coursier Ln
W Youngstown Ln
EXISTING R10-20
(no change requested)
W Barnes Rd
N Barnes Rd
W Dorothy Ct
N Madeline Ln
N Sundance Dr
W Nadine Ct
Indian Trail Library
EXISTING AND PROPOSED LAND USE DESIGNATIONS

MapSpokane

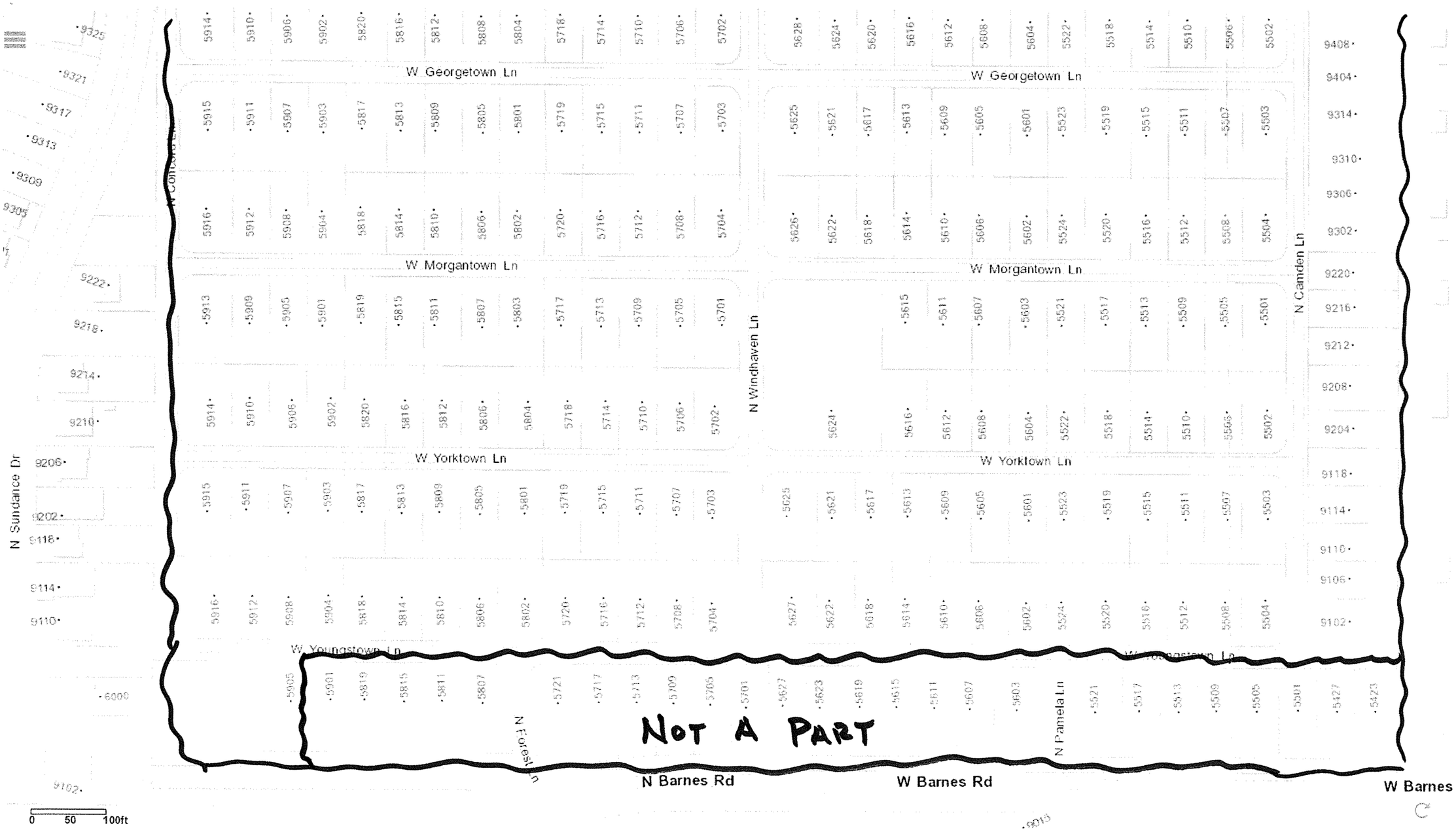
Search Basemap Measure



PARCEL MAP 1

MapSpokane

Search Basemap Measure



Map Use Disclaimer

http://maps.spokanecity.org/#

October 28, 2015

PARCEL MAP 2

Contents

Search Basemap Measure

Layers | **Legend**

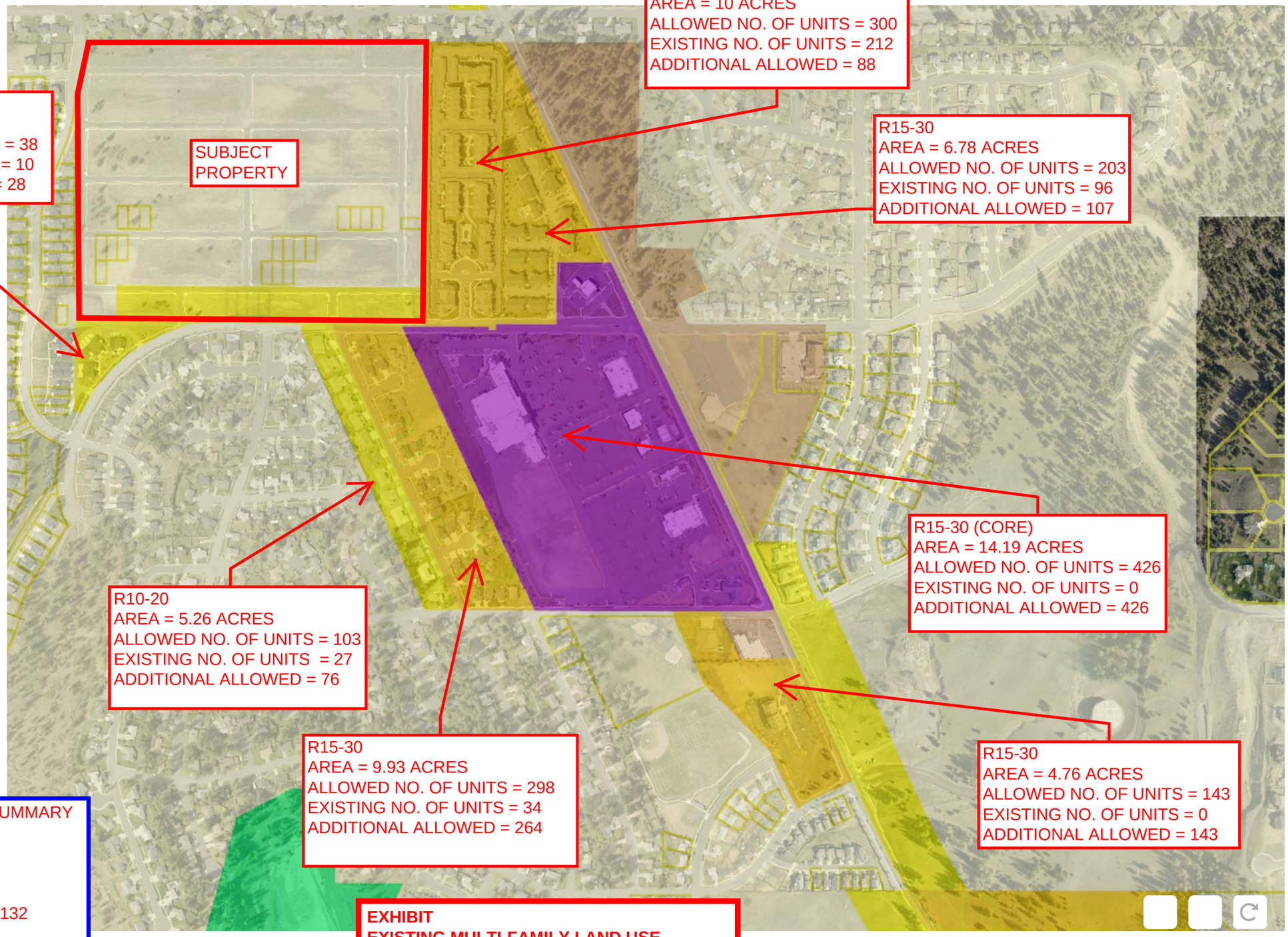
Property

Parcel

Planning

Landuse Plan

- Conservation Open Space
- Potential Open Space
- Open Space
- Agriculture
- Residential 4-10
- Residential 10-20
- Residential 15-30
- Residential 15+
- Office
- CC Core
- CC Transition
- Neighborhood Retail
- Mini Center
- General Commercial
- Downtown
- Light Industrial
- Heavy Industrial
- Institutional
- Mining



MULTI-FAMILY LAND USE UTILIZATION SUMMARY

TOTAL AREA = 52.8 ACRES
TOTAL ALLOWED UNITS = 1511
TOTAL EXISTING UNITS = 379
TOTAL ADDITIONAL ALLOWED UNITS = 1132

EXHIBIT
EXISTING MULTI-FAMILY LAND USE UTILIZATION @ NEIGHBORHOOD CENTER

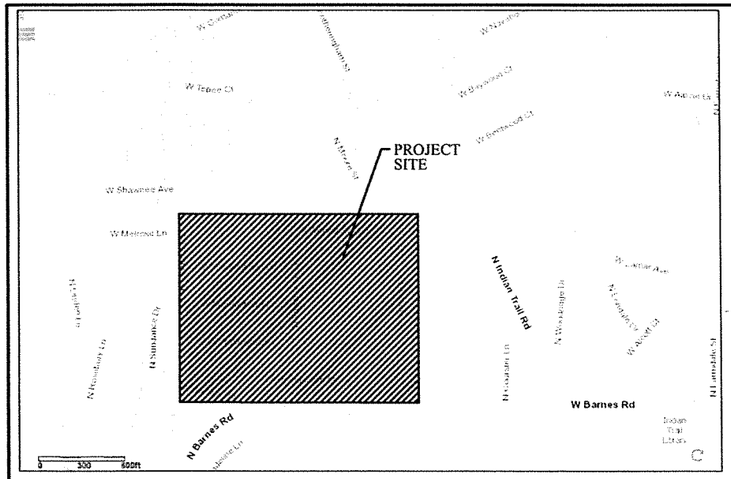
Map Use Disclaimer

COVER SHEET
FOR

WINDHAVEN FIRST ADDITION, PUD

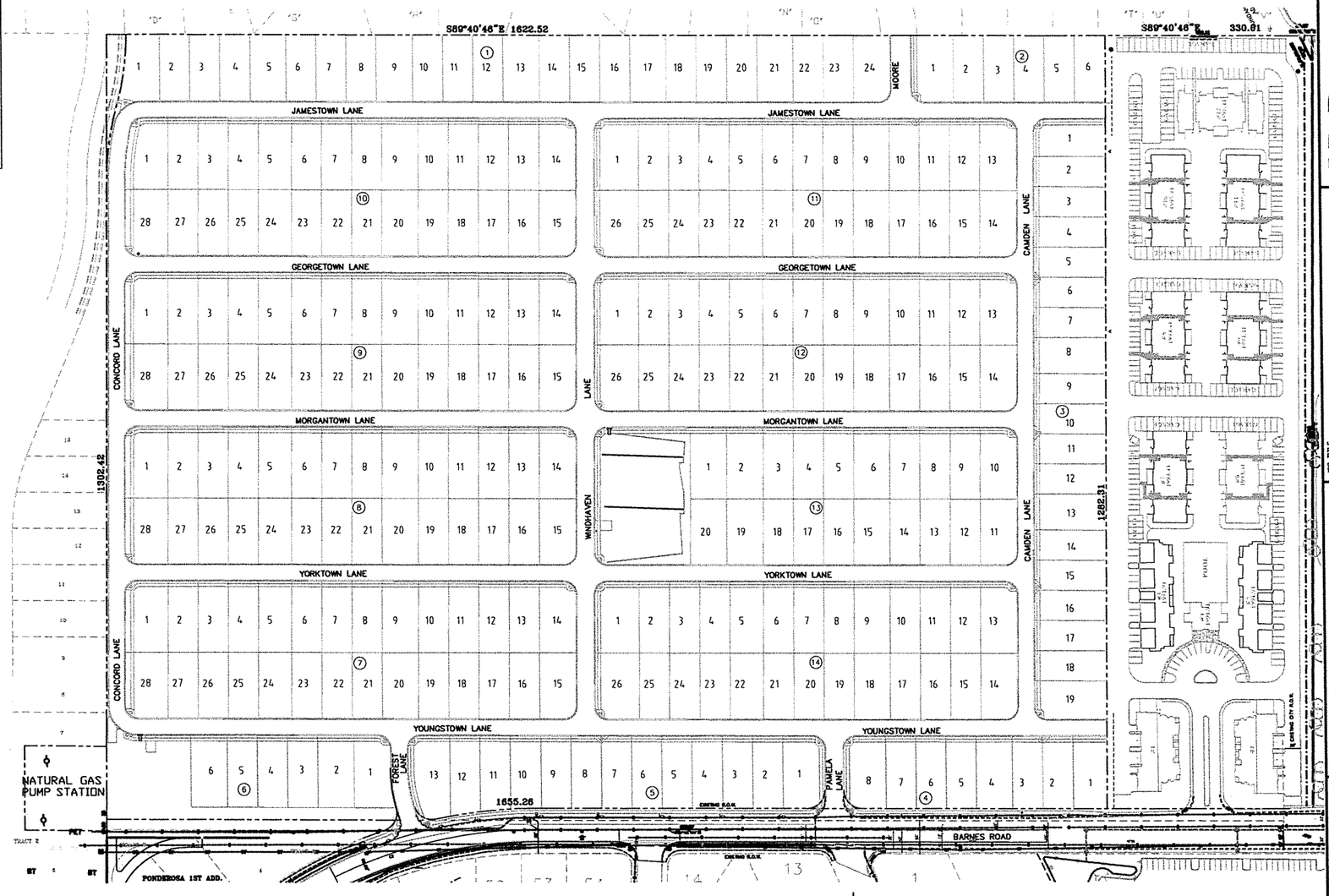
COMPREHENSIVE PLAN MAP AMENDMENT

NW 1/4 SEC. 22, T. 26 N., R. 42 E.W.M.



VICINITY MAP

N.T.S.



GRAPHIC SCALE
100 0 50 100 200
(IN FEET)
1 inch = 100 ft.

LEGAL DESCRIPTION:
A PLANNED UNIT DEVELOPMENT BEING A REPLAT OF BLOCKS 274, 275, 312, 313, 338, 339, 376, 377 AND A PORTION OF BLOCKS 273, 314, 337, & 378 OF THE FINAL PLAT OF PROSPERITY ACRES.
LOCATED IN THE NW ¼ SEC. 22, T26N, R42 E.W.M.
CITY OF SPOKANE, WASHINGTON

ISSUED 10/28/15

REV.	DATE	BY	DESCRIPTION

APPLICANT:
MORNINGSIDE INVESTMENTS, LLC
815 E. ROSEWOOD AVE.
SPOKANE, WA 99208

AGENT:
J.R. BONNETT ENGINEERING, PLLC
803 E. 3RD AVENUE
SPOKANE, WA 99202
509-534-3929
JAY BONNETT, P.E.
PHONE: 509-534-3929
E-MAIL: jbonnett@jrbonnett.com

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG

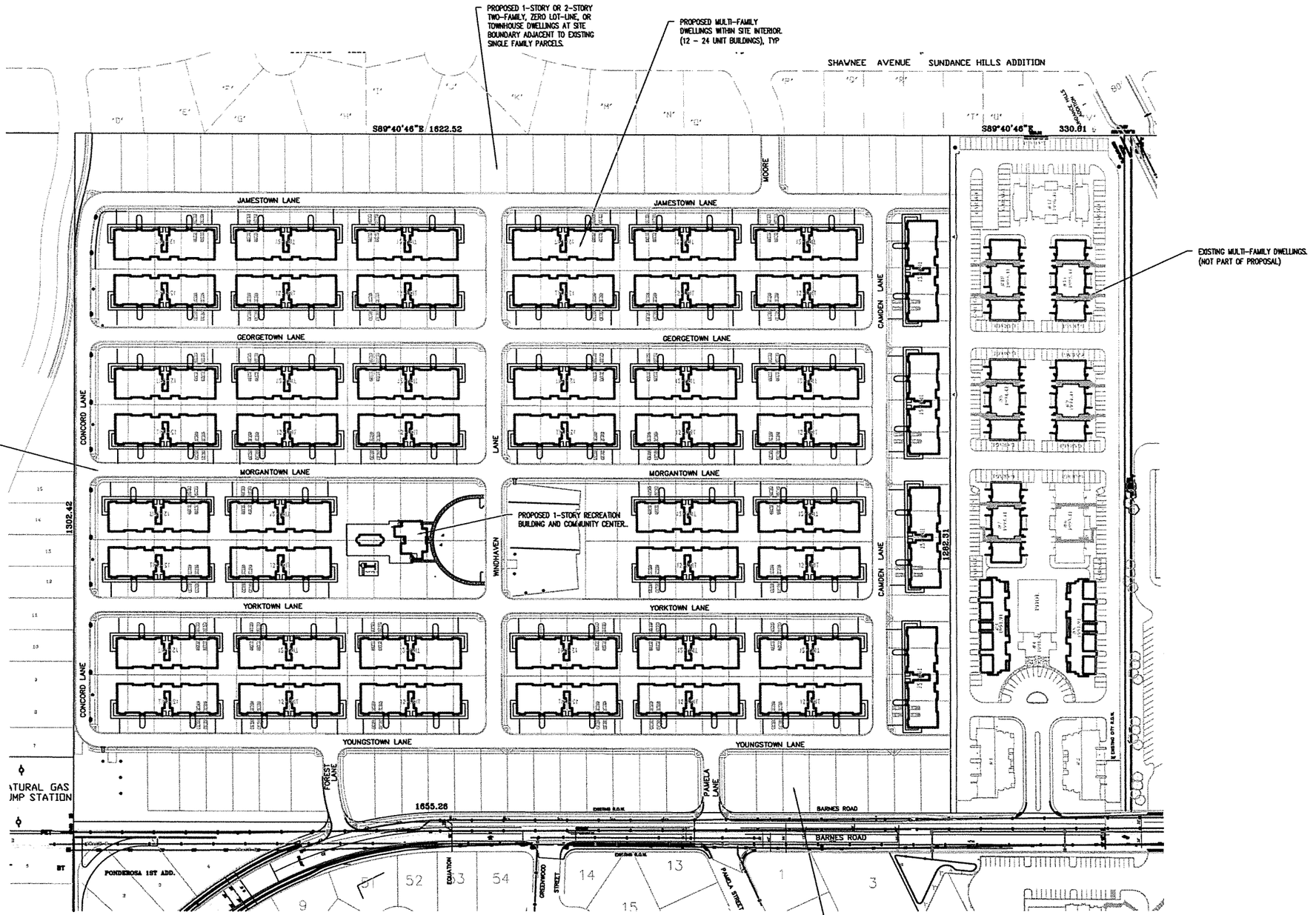
J.R. BONNETT ENGINEERING
CIVIL AND STRUCTURAL CONSULTING AND DESIGN
803 E. 3RD AVENUE
SPOKANE, WASHINGTON 99202
(509) 534-3929 / FAX (509) 534-4014

JOB TITLE: WINDHAVEN FIRST ADD. COMP. PLAN AMENDMENT — BARNES ROAD — SPOKANE, WA

SHEET TITLE: COVER SHEET

10/28/15

DATE: OCT. 2015
DRAWN BY: JRB
DESIGN BY: JRB
JOB NO.: 13-071.10
SHEET NO.: EX0.0



CONCEPTUAL SITE PLAN

SCALE: 1" = 100'

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JOB TITLE: WINDHAVEN FIRST ADD. COMP. PLAN AMENDMENT — BARNES ROAD — SPOKANE, WA

SHEET TITLE: CONCEPTUAL SITE PLAN

10/28/15

DATE: OCT, 2015
DRAWN BY: JRB
DESIGN BY: JRB
JOB NO.: 13-071.10
SHEET NO.: EX1.1

ISSUED 10/28/15

REV.	DATE	BY	DESCRIPTION

NOTE:
THE INFORMATION PRESENTED ON THIS DRAWING IS FOR INFORMATIONAL PURPOSES ONLY AND MAY BE SUBJECT TO CHANGE. FINAL RESIDENTIAL DENSITY, SITE LAYOUT AND BUILDING CONFIGURATIONS HAVE NOT BEEN DETERMINED.

UNDERGROUND SERVICE ALERT
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WAC 197-11-960: Environmental checklist.

SEPA
ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable: **Windhaven First Addition, P.U.D. Comprehensive Plan Amendment**

2. Name of applicant: **Morningside Investments, LLC – J.R. Bonnett Engineering, PLLC (agent)**

3. Address and phone number of applicant and contact person:

   815 E. Rosewood Avenue

   Spokane, WA 99208

   (509) 489-4260

   Contact: Jay Bonnett

   (509) 534-3929

4. Date checklist prepared: **October 14, 2015. (Amended May 4, 2016)**

5. Agency requesting checklist: **City of Spokane**

6. Proposed timing or schedule (including phasing, if applicable):

   To be determined

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No planning or construction documents have been prepared relating to this proposal as of this date. The property will likely be developed into a multi-family living community upon securing all applicable permits.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Infrastucture, including roadways, water, sewer, storm drainage, electrical, gas, and phone has already been installed throughout the site. Geotechnical reports relating to stormwater disposal and street pavement design may have been prepared in support of the construction work. No buildings were constructed on the site. No critical areas exist on the site. No wetlands or other environmentally sensitive areas exist on the site. Stormwater drainage reports (WCE No. 2009-678) dated November 2009 and July 2011, were prepared by Whipple Consulting Engineers. These reports were prepared in support of a supplemental parking lot addition along the northeast boundary of the property for the existing Lusitano Apartments directly east of the subject property. The parking lot was never constructed. The WCE drainage reports referenced a geotechnical study dated April 19, 2005, prepared by Allwest in 2005 that supported the use of drywells for stormwater disposal purposes in the Windhaven PUD.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

We anticipate submitting applications to the City of Spokane for the purpose of acquiring development permits. We are not aware of any applications that are or may be pending government approvals for this property.

10. List any government approvals or permits that will be needed for your proposal, if known.

This proposal requests approval of changing the land use designation in the City's Comprehensive Plan from R4-10 ~~and R10-20~~ to R10-20 and R15-30. It also requests approval of changing the City's zone designation from RSF ~~and~~ to RTF ~~to~~ and RMD. Standard development and construction permits will be secured for building multi-family dwellings.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

This project is intended to place multiple multi-family dwellings on approximately 49.5 acres of land. The site infrastructure, including paved private streets, water piping networks, sewer systems, stormwater control facilities and all dry utilities have been constructed throughout the site to accommodate 286 single family dwellings. The intent is to construct wood-framed, multi-family buildings in lieu of the single family dwellings within the confinements of the existing private street system with as little disruption to the existing facilities as possible. The requested land use designation would provide for a housing density of approximately 15 ~~15-30~~ units per acre, yielding up to 750 ~~742 – 1485~~ units. ~~It is likely the actual unit count will be closer to the lower end of this range~~.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of

area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The subject property is located on the north side of Barnes Avenue, approximately 320 yard west of Indian Trail Road within the city limits of Spokane, WA. It is directly west of the existing Lusitano Apartment community.

13. Does the proposed action lie within the aquifer sensitive area (ASA)? The General Sewer Service area? The Priority Sewer Service Area? The City of Spokane?

Yes

14. The following questions supplement Part A.

a. Critical Aquifer Recharge Area (CARA) / Aquifer Sensitive Area (ASA)

(1) Describe any systems, other than those designed for the disposal of sanitary waste, installed for the purpose of discharging fluids below the ground surface (includes systems such as those for the disposal of stormwater or drainage from floor drains). Describe the type of system, the amount of material to be disposed of through the system and the types of material likely to be disposed of (including materials which may enter the system inadvertently through spills or as a result of firefighting activities).

Development of this property related to this proposal would consist of multi-family dwellings that will be served by public water and sewer. No fluids are anticipated to be discharged below the ground surface.

(2) Will any chemicals (especially organic solvents or petroleum fuels) be stored in aboveground or underground storage tanks?

No.

(3) What protective measures will be taken to insure that leaks or spills of any chemicals stored or used on site will not be allowed to percolate to groundwater? This includes measures to keep chemicals out of disposal systems.

It is not expected that significant quantities of chemicals will be used on the site. Household detergents, cleaning solutions, soaps, etc. consistent with normal residential products are anticipated. No leaks or spills of any chemicals are anticipated.

(4) Will any chemicals be stored, handled or used on the site in a location where a spill or leak will drain to surface or groundwater or to a stormwater disposal system discharging to surface or groundwater?

Chemicals beyond those contained in normal household products purchased by the occupants will not be stored, handled or used on the site.

b. Stormwater

(1) What are the depths on the site to groundwater and bedrock (if known)?

Unknown.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (circle one): **Gently Sloped, Relatively Flat** ~~, rolling, hilly, steep slopes, mountainous,~~
other . . . . . .

b. What is the steepest slope on the site (approximate percent slope)?

The site generally slopes uniformly down from the east end to the west end. The average grade across the site is approximately 3%. The steepest grades are approximately 6%.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

According to the Windhaven PUD geotechnical report the site soils consist of Marble loamy coarse sand (MbC). No farmlands exists on this site.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

We did not encounter any surface conditions or history of unstable soils in the immediate vicinity.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Minimal filling and grading is anticipated. Minor excavation work is anticipated for placement of new building foundations. Minor grading is anticipated at the new driveways and approaches to the buildings from the street. Approximate quantities of soil for filling and grading will be determined during the site design phase. The site excavations will likely be balanced, so no import or export of soil is anticipated.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion could possibly occur as a result of construction activity or use. Temporary erosion and sediment control best management practices will be used to mitigate potential erosion impacts to the offsite areas. Permanent landscaping that includes ground covering vegetation will be placed at the completion of the project and therefore no erosion is anticipated upon project completion.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

We estimate that approximately 60% of the site will be covered with impervious surfaces upon project completion.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Since the site is relatively flat, it is unlikely that erosion will occur as a result of any clearing. Mass excavation activities are not anticipated, since the streets and underground utilities have already been constructed. Temporary erosion and sediment control best management practices during construction will be used to mitigate potential erosion impacts to the offsite areas. Permanent landscaping that includes ground covering vegetation will be placed at the completion of the project and therefore no erosion is anticipated upon project completion.

a. **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Emissions generated on-site would occur during the following: Short term dust and emissions construction equipment; automobile emissions and dust (on and off site). Upon project completion, dust from construction activities will not exist and automobile emissions will likely return to expected levels contributory to multi-family housing.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Methods to reduce or control dust and vehicle emissions include the following: Keep construction access routes adequately moistened with water. Cover loads; etc. The subject property is in close proximity to an existing Neighborhood Center where pedestrian and bicycle travel would likely reduce automobile trips. The subject site is in close proximity to a public transit system and would likely be used by residents of this community, which would reduce automobile trips.

TO BE COMPLETED BY APPLICANT EVALUATION FOR AGENCY USE ONLY

3. **Water**

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

No

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

The project will not require any work over, in, or adjacent to such waters.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

The proposal does not require surface water withdrawals or diversions.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

The proposal does not lie within a 100-year floodplain.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No, the proposal does not involve any discharge of waste materials to surface waters.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No ground water will be withdrawn. The existing stormwater system utilizes underground injection wells (drywells) to dispose of runoff. The system was approved by the City of Spokane and is presumed to be in compliance with all local and state regulations. While not anticipated, additional drywells may be installed in accordance with Spokane Regional Stormwater Manual and Washington State Department of Ecology regulations if determined to be necessary to adequately dispose of surface runoff.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be discharged into the ground from septic tanks or other sources.
The subject property is located in the City of Spokane, which provides solid waste disposal service.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Runoff (including stormwater) from new asphalt-paved areas will be conveyed to adequately designed biofiltration swales for treatment and disposed of through infiltration facilities such as drywells or underground gravel galleries.

2) Could waste materials enter ground or surface waters? If so, generally describe.

No waste materials are anticipated on this site. Contaminants from vehicles will be conveyed to biofiltration swales for treatment prior to disposal through the infiltration facilities.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

As noted previously, runoff (including stormwater) from new concrete or asphalt-paved areas will be conveyed to adequately designed biofiltration swales for treatment and disposed of through infiltration facilities such as drywells or underground gravel galleries.

4. **Plants**

a. Check or circle types of vegetation found on the site:

- ☐ deciduous tree: alder, maple, aspen, other
- ☐ evergreen tree: fir, cedar, pine, other
- ☐ shrubs
- ☐ grass

——— pasture

——— crop or grain

——— wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

———— water plants: water lily, eelgrass, milfoil, other

———— other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

The vegetation that exists on the site consists of natural dryland sparse pine young pine trees, grass, weeds, etc., will likely be removed from all areas. The entire site was previously stripped of vegetation during construction of the streets and in preparation of single family dwelling construction. The vegetation that currently exists has naturally emerged since that time.

c. List threatened or endangered species known to be on or near the site.

We have reviewed the Threatened and Endangered Species list as determined by the Washington Department of Fish and Wildlife. None of the species are located within the area proposed for development.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:
Proposed landscaping will be consistent with the adjacent existing landscaping at the Lusitano Apartments in accordance with City of Spokane regulations.

5. **Animals**

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, **songbirds**, other:
mammals: deer, bear, elk, beaver, **other**:
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

Based on our review of the Department of Fish & Wildlife's determination, we were not able to identify any threatened or endangered species within this area.

c. Is the site part of a migration route? If so, explain.

The subject site is surrounded by developed land and was recently developed with streets and sidewalks. No evidence of migration routes have been detected.

d. Proposed measures to preserve or enhance wildlife, if any:

Not Applicable

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electricity and natural gas will likely be used for energy needs of the community.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

Unknown

c. What kinds of energy conservation features are included in the plans of this proposal?
List other proposed measures to reduce or control energy impacts, if any:

None at this time. All construction and development will be in accordance with local, state and federal regulations, including energy codes.

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

We do not expect to encounter any environmental health hazards.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

1) Describe special emergency services that might be required.

None

2) Proposed measures to reduce or control environmental health hazards, if any:

No environmental health hazards are anticipated.

b. **Noise**

3) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Existing traffic noise will continue from area residents and those visiting the Neighborhood Center. Temporary construction-related noise will occur during working hours.

4) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)?
Indicate what hours noise would come from the site.

Noise will be created by operation of construction equipment, etc. during normal working hours and on a short-term basis through project completion. Noises associated with a residential community is anticipated in the long-term.

5) Proposed measures to reduce or control noise impacts, if any:

Construction-related noise impacts will generally occur during normal working hours, which will minimize impacts to the surrounding neighborhoods.

8. **Land and shoreline use**

a) What is the current use of the site and adjacent properties?

The site is currently vacant - no structures exist. Streets, sidewalks and street lighting along with all standard residential utility services, including water, sewer, gas, phone and cable have been constructed. The adjacent properties have been developed into single family residential dwellings to the north, west and portions of the south. Multi-family housing exists along the east boundary and portions of the south boundary. A Neighborhood Center exists at the southeast corner of the site.

b. Has the site been used for agriculture? If so, describe.

Unknown

c. Describe any structures on the site.

No structures exist on the site.

d. Will any structures be demolished? If so, what?

No.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

e. What is the current zoning classification of the site?

RSF and RTF

f. What is the current comprehensive plan designation of the site?

R4-10 and R10-20

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

No

i. Approximately how many people would reside or work in the completed project?

Unknown. The completed project could support ~~between 740 and 1200~~ up to 750 housing units.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

No displacement impacts are expected.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

Since most of the land within and surrounding the Neighborhood Center has already been developed in to relatively low-density housing, this proposal would contribute to the quality of life in this area by supplementing the existing underutilized multi-family housing developments in the area and providing increased population within walking distance of the existing Neighborhood Center. The increased population would help support the Neighborhood Center and would have a positive influence on increasing investment and tax revenues as deemed necessary by the Comprehensive Plan to attract higher incomes to the neighborhood. The goal is to amend the land use code as it relates to the subject site to the R15-30 designation to make up for deficient multi-family housing stock in this area.

Multiple properties with multi-family residential land use designations within and around the Neighborhood Center fail to meet density goals of the Comprehensive Plan.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

The completed project could consist of ~~740 – 1485~~ up to 750 units. Middle to high income housing is anticipated.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units will be eliminated.

c. Proposed measures to reduce or control housing impacts, if any:

None

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

To be determined. Building heights will be limited to applicable building and development codes.

b. What views in the immediate vicinity would be altered or obstructed?

Unknown

c. Proposed measures to reduce or control aesthetic impacts, if any:

None

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Lighting will be used to provide indoor and outdoor lighting needs, which will include parking areas. Minimal glare will likely occur during evening hours, when people are entering or leaving the site.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

The site will be designed to utilize its location. Light and glare will be minimal and should not be a safety hazard or significantly interfere with views.

c. What existing off-site sources of light or glare may affect your proposal?

Existing off-site sources of light and glare generally continue to occur in the surrounding areas. Most of the off-site sources are generated by the surrounding houses and street lights.

d. Proposed measures to reduce or control light and glare impacts, if any:

No measures are proposed.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

The subject property is in close proximity to a Neighborhood Center where shopping, restaurants and other social activities are available. The property is also close to the City's Pacific Park. The property is located along and accessible to a designated pedestrian and bicycle route. The property is also in close proximity to the City's public library and elementary school with a playground.

b. Would the proposed project displace any existing recreational uses? If so, describe.

The proposed project will not displace any existing recreational uses.

c Proposed measures to reduce or control impacts on recreation, including recreational opportunities to be provided by the project or applicant, if any:

Not Applicable

13. **Historic and cultural preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

We are not aware of any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

We are not aware of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

c. Proposed measures to reduce or control impacts, if any:

Not applicable

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

The existing main entrances to the site access Barnes Road. Additionally, access may be provided at the northeast corner of the site at the existing Moore Street.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The nearest public transit stop is approximately ¼-mile from the site on Indian Trail Road.

c. How many parking spaces would the completed project have? How many would the project eliminate?

The number of completed parking spaces will be determined during the design phase of the development. It is anticipated that 2 parking spaces per living unit will be provided. No parking spaces will be eliminated.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No new roads or streets are anticipated.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No, the project will not use water, rail, or air transportation.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

A traffic impact analysis ~~trip generation analysis~~ estimating the Average Daily Trips and peak volumes will be prepared for the project based on the final living unit count. The number of vehicular average daily trips could be as many as 4,950 ~~range between 4,900 and 7,980~~ according to the ITE Trip Generation Manual.

g. Proposed measures to reduce or control transportation impacts, if any:

Proposed measures to reduce or control transportation impacts include: ride sharing, alternating days & time, utilize the Spokane Transit Authority, etc.

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

It is difficult to determine how the project may, or may not, result in an increased need for public services. The following services should be considered when determining the need of the community:

Fire Protection: Fire Protection is provided through Government funding.
Police Protection: Police Protection is also provided through Government funding.
Health Care: This is based on need and is paid for through the recipient.
Schools: This provides an opportunity for Children to go to School.

Due to the increase in population there may be an increased need for public services. Concurrency must be met. According to the GMA and Comprehensive Plan, the City's capital improvement program must provide adequate public facilities and ensure that the facilities will be in place when development occurs.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Impact fees and GFC's will be assessed to the developer of this project to pay proportionate impacts to public services.

16. **Utilities**

a. Circle utilities currently available at the site:

electricity, natural gas, water, refuse service, telephone, sanitary sewer, cable, ~~septic system~~, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Utilities proposed for the development would consist of standard residential-type utilities described below.

Electricity: Avista
Natural Gas: Avista
Refuse Service: City of Spokane
Water: City of Spokane
Telephone: Centurylink
Sanitary Sewer: City of Spokane

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: .....

Date Submitted: 5/4/2016 .....

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

The intention of this proposal is to provide the means for increasing the residential density on the property by changing the land use designation. The site is adjacent to an existing CC-Core land use designation and CC2-NC zoning designation that is occupied by various types of businesses. If approved, there would be increased air emissions from vehicles upon completed development compared to the emissions coming from vacant land. There will be no production, storage, or release of toxic or hazardous substances nor will there be any production of noise after construction activities have stopped other than normal residential-type noises.

Proposed measures to avoid or reduce such increases are:

Best management practices relating to erosion and sediment control, dust abatement, etc. will be exercised during construction activities. Construction activity will be limited to normal working hours. All driving surfaces will be paved and undeveloped areas surrounding the buildings and paved areas will be landscaped in a manner to reduce dust.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Not Applicable. The site does not contain any endangered plants, animals, fish or marine life.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

Not Applicable.

3. How would the proposal be likely to deplete energy or natural resources?

No energy or natural resources will be depleted by development of this property.

Proposed measures to protect or conserve energy and natural resources are:

All buildings will be constructed in accordance with all local, state and federal regulations including energy codes.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

   No adverse effects to environmentally sensitive areas or areas designated for governmental protection is anticipated.

Proposed measures to protect such resources or to avoid or reduce impacts are:

No environmentally sensitive areas exist on or around the site. Therefore, no protection measures are warranted.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

The subject property is not within or near a shoreline area and therefore not subject to shoreline regulations.

Proposed measures to avoid or reduce shoreline and land use impacts are:

No shoreline areas exist on or around the site. Therefore, no protection measures are warranted.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Due to the increase in population there may be an increased need for public services. Concurrency must be met. According to the GMA and Comprehensive Plan, the City's capital improvement program must provide adequate public facilities and ensure that the facilities will be in place when development occurs. Traffic on Barnes Road and Indian Trail Road would likely increase. Public water and sewer demands will be evaluated and compared to existing capacities during the design phase. If determined to be warranted, system upgrades will be made as necessary.

Proposed measures to reduce or respond to such demand(s) are:

The intersection of Barnes Road and Indian Trail Road is signalized with designated left and right turn lanes. Public water and sewer demands will be evaluated and compared to existing capacities during the design phase. If determined to be warranted, system upgrades will be made as necessary. Pedestrian and bicycle paths will be provided to the public right-of-way to promote those modes of transportation to the Neighborhood Center, nearby school, library and park. The use of nearby public transportation will be encouraged to all residents.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

No conflicts with local, state or federal laws or requirements for the protection of the environment are known to exist.

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Windhaven Apartments
DRAFT Traffic Impact Analysis

MORRISON-MAIERLE, INC.

WINDHAVEN APARTMENTS
DRAFT TRAFFIC IMPACT ANALYSIS

SUBMITTED TO:

CITY OF SPOKANE

May 2016

PREPARED BY:

William (Bill) White

Morrison Maierle
engineers • surveyors • planners • scientists

316 Boone Avenue, Suite 360
Spokane, WA 99223
509.315.8366

MMI PROJECT #: 5594.002

EXECUTIVE SUMMARY

Windhaven First Addition is an approved City residential development that occupies 49.48 acres aligned north of Barnes Road and west of Indian Trail Road within the Indian Trail neighborhood of Spokane. The project was initially approved in year 2006 for the construction of 286 single family homes developed approximately five years. No homes have been constructed yet; although the street infrastructure for the development is complete. This includes primary vehicle access to Barnes Road via Forest Lane and Pamela Lane, with secondary access provided to the adjacent apartment development (to the east) via Jamestown Lane. The project is within an RSF zone of the City with a site Comprehensive Plan designation of Residential 4-10.

Due to evolving market conditions, the project proponent has recently proposed to develop up to 750 apartment units on the site as opposed to single family homes. The proposal results in a density of 15.2 homes per acres, which exceeds the approved residential density. Thus, a Comprehensive Plan amendment and zone change would be needed to accommodate the proposal; specifically to a RMF zone and Comprehensive Plan designation of Residential 15-30.

Note the proposed apartment density marginally exceeds minimum zoning and Comprehensive Plan allowances, and is just under half of maximum allowable densities (of up to 30 apartments per acre). The reduced density was accommodated to minimize the traffic impacts of the proposed development on the Indian Trail neighborhood; as this was expressed as a concern of citizens living within the area. The developers have reduced site densities considerable from initial development proposals.

Site access is promoted as described previously, with primary access provided via Forest Lane and Pamela Street and secondary access via Jamestown Lane.

Per City concurrency evaluations, Windhaven First Addition with 286 homes is vested to generate 210 trips during the AM peak hour and 271 trips during the PM peak hour. This would represent the trip generation equivalent of 460 apartment units. This distinction is important because it demonstrates that 46 percent of the current apartment proposal could be developed before surpassing vested/programmed traffic generation levels. A comparison of trip generation equivalencies is provided below.

Vested Residential Land Use & Trip Comparisons

Residential Land Use	Dwelling Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single Family Homes (ITE Code 210)	286	65	145	210	179	92	271
General Apartment Units (ITE Code 220)	460	46	183	229	176	95	271

This TIA is responsible for addressing the net gain in trips over those vested/identified above. The 750 unit apartment proposal represents a net gain in trip generation of 161 trips during the

AM peak hour and 159 trips during the PM peak hour over those vested/associated with single family home development. Summary trip generation gains are shown on the next page.

Project Trip Generation Gains – Proposed Apartments Vrs. Vested Single Family							
Land Use	Dwelling Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Apartments - ITE Code 220	750	74	297	371	280	150	430
Single Family Homes - ITE Code 210	286	65	145	210	179	92	271
Net Gain Site Trips	--	9	152	161	101	58	159

About 21 percent of project trips are anticipated to/from the east on Barnes Road (via the new extension and connection to Strong Road). About 9 percent of project trips are anticipated to/from the north and 70 percent to/from the south on Indian Trail Road. The majority of project trips along Indian Trail Road south will travel to/from the east on Francis Avenue; distributing throughout a study area that addresses the Alberta Street and Maple/Ash Couplet intersections with Francis Avenue.

TRAFFIC FORECASTS AND CAPACITY

City officials require this study address traffic operations principally for site access intersections and seven off-site intersections most impacted by development within the Indian Trail neighborhood. The analysis was required for the AM and PM peak hours of the typical weekday, as based on the forecast year 2021 completion year of the project. A summary of study intersections include:

- Shawnee Avenue/Indian Trail Road
- Barnes Road/Indian Trail Road
- Strong Road/Indian Trail Road
- Indian Trail Road/Francis Avenue
- Alberta Street/Francis Avenue
- Ash Street/Francis Avenue
- Maple Street/Francis Avenue
- Barnes Road/Forest Lane (Project Access)
- Barnes Road/Pamela Lane (Project Access)

Existing Conditions. Traffic counts were performed during typical weekdays in March, with a follow-up count in April (for Shawnee Road/Indian Trail Road intersection) to capture the peak demands of the morning and afternoon commutes. These counts were performed specifically while local schools were in session, as to capture the travel demands of these special traffic generators.

City of *Spokane Administrative Policy and Procedure for Transportation Concurrency Level of Service Standards* defines a LOS E standard for signalized and unsignalized intersections aligned along a principal arterial. An analysis of existing traffic operations indicates there were no levels-of-service (LOS) issues identified within the field, as all intersections were shown to function at LOS E or better between the AM and PM peak hours. Existing intersection LOS conclusions are shown on the next page.

Existing LOS and Delay - AM and PM Peak Hours				
	AM Peak		PM Peak	
Signalized Intersections	LOS[1]	Delay[2]	LOS[1]	Delay[2]
Shawnee Ave/Indian Trail Rd	B	17.3	A	7.7
Barnes Rd/Indian Trail Rd	B	18.1	B	14.4
Strong Rd/Indian Trail Rd	A	9.7	B	18.9
Indian Trail Rd/Francis Ave	B	12.3	A	7.9
Alberta St/Francis Ave	D	36.4	C	32.2
Ash St/Francis Ave	C	22.3	C	20.4
Maple St/Francis Ave	B	17.4	D	38.8

1. LOS = Levels-of-Service
2. Del = Delay in seconds

Secondary lane capacity analyses and speed counts were performed discretionarily to support conclusions for Indian Trail Road. The lane analysis was used to help identify whether adequate capacity exists for through traffic (northbound and southbound movements) outside of study intersections along Indian Trail Road. Lane capacities were reviewed for three count locations within the vicinity of the "bottleneck" on Indian Trail Road: 1) north of Weile Avenue (south of bottleneck); 2) north of Kathleen Avenue (within bottleneck); and 3) north of Lowell Avenue (north of Bottleneck). A summary of the lane capacity analysis is shown below.

Existing Indian Trail Lane Capacity - AM and PM Peak Hours									
	Capacity			AM Peak Hour			PM Peak Hour		
Indian Trail Road	NB	SB	Tot	NB	SB	Tot	NB	SB	Tot
N/of Weile Ave	1,800	1,800	3,600	287	1,114	1,401	1,099	450	1,549
N/of Kathleen Ave	900	900	1,800	283	1,151	1,434	1,085	449	1,534
N/of Lowell Ave	900	900	1,800	246	954	1,200	807	384	1,191

As shown, lane capacity is sufficient within the four lane section of Indian Trail north Road north of Weile Avenue. However, existing counts are shown to exceed directional lane capacities within specifically within the bottleneck area north of Kathleen Avenue. There is minor lane capacity exceptions noted north of Lowell Avenue, but overall capacity appears to be sufficient north of the bottleneck. A comparison/review of this data does suggest need for lane widening as based on existing count data.

Despite the lane capacity results above, travel speeds within the corridor do not seem to be overly compromised. Speed counts were performed at the locations identified/reviewed above, south of, within, and north of the bottleneck area along Indian Trail Road. Average travel speeds were found to be 3 to 6 mph above the posted 30 mph speed limit along the roadway during AM and PM peak hours in both travel directions. The conclusion from this is that, while

additional capacity is needed, the travel time of typical commuters is not yet impacted. A summary of speed data is shown on the next page.

Indian Trail ADT and Speed Counts - AM and PM Peak Hours					
Indian Trail Road	ADT	Average Speed - Northbound		Average Speed - Southbound	
		AM Peak	PM Peak	AM Peak	PM Peak
N/of Weile Ave	17,299	36.5	36.8	36.0	35.7
N/of Kathleen Ave	16,821	37.9	36.8	34.8	37.9
N/of Lowell Ave	13,555	34.3	31.9	33.4	33.2

Future Conditions. Future 2021 traffic volumes were developed for operational analyses assuming: 1) baseline (non-development associated) traffic growth, 2) the development of eleven study area pipeline projects (including vested Windhaven First Addition), and 3) the assignment of project trips. A 0.5 percent annual growth rate was applied to counts to reflect baseline (non-development) traffic growth. This growth was combined with the trips generated by pipeline projects to generate future without project traffic forecasts. The trip generation of these developments is shown below.

Vested Residential Land Use & Trip Comparisons by TAZ								
TAZ and Development	Dwelling Units/Homes		AM Peak Hour			PM Peak Hour		
	Single	Multi	In	Out	Total	In	Out	Total
TAZ 29								
- Hunts Point	183	48	48	119	167	142	72	214
- Windhaven First	286	0	65	145	210	179	92	271
- Ponderosa Ridge 3rd	12	0	6	13	19	10	5	15
- Ponderosa Ridge 4th	25	0	8	19	27	20	10	30
Subtotal TAZ 29	*506*	*48*	*127*	*296*	*423*	*351*	*179*	*530*
TAZ 30								
- Diamond Rock	0	96	10	41	51	46	25	71
- Replat McCarroll	13	0	6	13	19	11	6	17
- McCaroll's 3rd	10	0	5	12	17	9	5	14
- McCaroll's 4th	15	0	6	14	20	13	7	20
- McCarroll's East	7	28	8	26	34	21	10	31
- Woodridge View	7	0	5	10	15	6	3	9
Subtotal TAZ 30	*52*	*124*	*40*	*116*	*156*	*106*	*56*	*162*
TAZ 31								
- Estates at Rocky	15	0	6	14	20	13	7	20
- Westwinds PUD	19	0	7	16	23	16	8	24
Subtotal TAZ 31	*34*	*0*	*13*	*30*	*43*	*29*	*15*	*44*
Total Pipeline Trips	592	172	180	442	622	486	250	736

Finally, project trip assignments (shown previously) and future without project traffic volumes were combined to generate future with-project traffic forecasts. The resulting traffic forecasts result in growth rates of between 6 and 7 percent annually on Indian Trail Road, which far exceeds historical growth rates ranging between 1 and 1.5 percent annually. Thus, traffic forecasts are very conservative for year 2021 and may be more representative of long term traffic growth (beyond year 2021).

Future intersection analyses indicated that no LOS issues were noted based upon a review of future year 2021 traffic forecasts. This determination is made because no study intersection is forecast to function below LOS E on the principal arterials of Indian Trail Road or Francis Avenue during the peak hours. LOS at site access intersections are also shown to operate acceptably at LOS C or better during the peak hours. The resulting, forecast LOS, both without and with project development, are shown on the following Table.

Forecast Year 2021 LOS and Delay - AM and PM Peak Hours

Year 2021 Condition	Future Without Project Traffic				Future With Project Traffic			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Signalized Intersections	LOS[1]	Delay[2]	LOS[1]	Delay[2]	LOS[1]	Delay[2]	LOS[1]	Delay[2]
Shawnee Ave/Indian Trail Rd	B	17.9	A	8.2	B	17.9	A	8.3
Barnes Rd/Indian Trail Rd	C	26.8	B	20.0	D	43.6	C	23.0
Strong Rd/Indian Trail Rd	C	20.2	D	52.4	D	37.3	E	68.8
Indian Trail Rd/Francis Ave	C	20.3	B	10.1	C	29.6	B	10.7
Alberta St/Francis Ave	E	65.6	D	53.7	E	78.3	E	59.4
Ash St/Francis Ave	C	26.1	C	21.3	C	28.9	C	21.5
Maple St/Francis Ave	B	17.6	D	51.4	B	17.6	D	54.0
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Unsignalized Intersections	LOS[1]	Delay	LOS[1]	Delay	LOS[1]	Delay	LOS[1]	Delay
Forest Ln/Barnes Rd	B	10.6	B	10.2	B	11.4	B	10.6
Pamela Ln/Barnes Rd	B	31.1	B	12.0	C	19.0	C	14.0

1. LOS = Levels-of-Service
2. Del = Delay in seconds

City of Spokane traffic engineering staff routinely works to "optimize" traffic signal performance in order to improve intersection and corridor mobility; especially along arterials such as Francis Avenue and Indian Trail. Although this study demonstrates no LOS issues at study intersections, as compared with code, it should be noted that enhanced performances (via improved LOS and/or reduced average vehicle delay) were identified analytically by modifying signal cycle lengths or phase splits in response to the higher travel demands identified with forecast traffic volumes. This confirms City staff should have the ability to maintain traffic operations beyond levels stated in the report as the area continues to grow in the future.

Forecast lane capacity was still shown to be sufficient within the four lane section of Indian Trail north Road north of Weile Avenue. Forecast traffic volumes further demonstrate the need for

lane widening along Indian Trail Road north of Kathleen Avenue (within bottleneck) and north of Lowell Avenue (north of Bottleneck). This determination is confirmed because forecast traffic volumes well exceed single lane capacity in the southbound direction during the AM peak hour and the northbound direction during the PM peak hour. Forecast lane volume comparisons are shown below.

Future With-Project Indian Trail Lane Capacity - AM and PM Peak Hours

Indian Trail Road	Capacity			AM Peak Hour			PM Peak Hour		
	NB	SB	Tot	NB	SB	Tot	NB	SB	Tot
N/of Weile Ave	1,800	1,800	3,600	376	1,396	1,772	1,351	732	2,083
N/of Kathleen Ave	900	900	1,800	385	1,483	1,868	1,410	781	2,191
N/of Lowell Ave	900	900	1,800	371	1,360	1,731	1,211	790	2,001

Pedestrian, Bike, and Transit. Pedestrian, bicycle, and transit access conditions are favorable within the project vicinity. Sidewalk is contiguous between the developments and nearby transit stops, shopping centers, and public facilities (a library and a park). There are commute bicycle routes on Indian Trail Road and Barnes Road; although some form of designated bike lanes for recreational facilities would be ideal in the future (such remediation is beyond the scope of development projects). Finally STA transit access to Indian Trail Road is sufficient on weekdays, with transit stops located within walking distance about ¼- mile east of Windhaven.

IMPROVEMENT RECOMMENDATION AND MITIGATION

The project is responsible for mitigating traffic impacts via transportation impact fee (TIF) contribution. The fee scheduled for the Northwest Service Area, within which the project is located, is $483.49 per until for two-story apartments and $296.33 for three-story apartments. Thus, the Windhaven development would be conditioned with up to **$362,620** of traffic impact fees ($483.49 * 750 two-story apartments), as collected prior to the issuance of any building permit on a per-unit/home or development phase basis.

A short term improvement was recommended and long term improvement confirmed for Indian Trail Road, in order to promote traffic mobility and safety. These recommendations and project mitigation proposals are as follows:

1. **Improvement.** Restripe Indian Trail Avenue to include two southbound travel lanes and one northbound travel lane, while maintaining a TWLTL, between Kathleen Avenue and Lowell Avenue. The project could be accommodated with narrow, but still acceptable, travel lanes striped within the 43 to 44 foot paved section that exists along this section of the arterial. This would provide needed and more desirable (by the neighborhood) southbound capacity along Indian Trail Road; helping to maintain mobility and emergency egress until widening could occur.

   Mitigation. The project proponent has offered to front the costs of restriping Indian Trail Road, either to be managed/constructed privately or as a City project, to provide more immediate congestion relief. The costs for this would be reduced from the total Windhaven TIF potential of $362,620 owed/conditioned for the project.

2. **Improvement.** Lane capacity analyses confirm the need for widening Indian Trail Road between Kathleen Avenue and Lowell Avenue. This is a congestion improvement that would enhance mobility and provide for improved emergency ingress and egress.

   Mitigation. The project proponent has offered to front a substantial portion of the Windhaven total TIF, as opposed to a per unit or phase basis, so City officials would have more immediate opportunities for design, ROW acquisition, and/or "match" funding (for grants) to advance the ultimate widening of Indian Trail Road. This should allow the project to advance more quickly versus what may normally occur within TIF processes.

These concessions would be a function of a development agreement per specifics developed between the City and the project proponent. The conditions would be promoted shortly following Comp. Plan amendment, zone change approvals, and/or construction approvals, as coordinated with the City.

PUBLIC PARTICIPATION

To be added to final TIA following comments collected at May 25 project public meeting.

SUMMARY

The improvements and mitigation described will address project-related deficiencies noted throughout the TIA (specifically for Indian Trail Road). The project will contribute $362,620 towards mitigation of area deficiencies, via the TIF; specifically working to promote intermediate and long-term improvements for Indian Trail Road, if approved by the City. Thus, this TIA should successfully support the zone change and comprehensive plan modifications being sought with the 750 unit apartment project proposal being sought for Windhaven, as project impacts will be addressed.

No further recommendations are provided by this TIA.

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Technical Appendix B: Summary Traffic Counts
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Technical Appendix D: Pipeline Project Trip Assignments

1 INTRODUCTION

Windhaven First Addition is an approved residential planned unit development (PUD) located within the Indian Trail neighborhood of Spokane, Washington. The project is located within a Residential Single Family (RSF) zone of the City with a Comprehensive Plan designation of Residential 4-10. Approved by City officials in the year 2006, the roadway infrastructure for the development has been constructed but no homes have been built.

As a result of evolving market conditions, the project proponent would like to develop apartment units on the site in-lieu of single family homes. A Comprehensive Plan amendment and zone change would be needed to accommodate this development modification. Specifically, Residential Multifamily (RMF) zone and Residential 15-30 Comprehensive Plan designations would be needed (and are being sought) to allow for apartment development.

Through the growth management act (GMA), City officials have planned for and certified transportation concurrency for roads within the Indian Trail neighborhood, as based on historical land use development proposals (Windhaven and other development projects). Zone and Comprehensive Plan changes could impact concurrency determinations. As such, City officials have requested due-diligence, in terms of a development traffic study, to assess the impact of a revised development proposal.

This report summarizes the Traffic Impact Analysis (TIA) performed for the Windhaven Apartments development proposed in the City of Spokane, Washington. The analysis identifies the transportation impacts of the current development proposal on primary arterials and roadways located within and providing access to the Indian Trail neighborhood. The scope and work program for this study was developed in coordination with technical staff from City of Spokane, and was performed in accordance with City of Spokane Road TIA Guidelines.

The City of Spokane is lead agency for this project and will provide principal TIA review. Any additional agencies would provide secondary review per the request of City officials.

1.1 PROJECT DESCRIPTION

Approved Project. The Windhaven First Addition project site occupies 49.48 acres aligned north of Barnes Road just under 1,000 feet west of Indian Trail Road within the Indian Trail neighborhood of Spokane. The approved project includes the construction of up to 286 single family homes programmed for construction over approximately five years. The project was historically approved for development by City officials in year 2006 within an RSF zone of the City and with a site Comprehensive Plan designation of Residential 4-10. The approved proposal represents a density of 5.8 single family homes per acre.

According to Spokane Municipal Code, the Residential Single-Family zone "*is a low density single-family residential zone. It allows a minimum of four and a maximum of ten dwelling units per acre. One- and two-story builds characterize the allowed housing. The major type of new development will be attached and detached single-family residences.*"

According to the City Comprehensive Plan, the Residential 4-10 "*designation allows single-family residences, and attached (zero-lot line) single-family residences. The allowed density is*

a minimum of four units and a maximum of ten units per acre. Allowed structure types are single-family residences, attached (zero-lot line) single family residences, or two-family residences in appropriate areas."

Primary access to the project has already been constructed via Forest Lane and Pamela Lane; two local streets extending into the development from Barnes Road (along southern boundary of site). Secondary access would be promoted through an extension of Jamestown Lane into the adjacent apartment development east of Windhaven. A final access was historically developed for vehicle traffic via an extension of Moore Street to Shawnee Avenue (along northern boundary of site). However, this approach would be used only for pedestrian access in the future.

As shown (right), Windhaven has already been developed with a network of local streets. North-south circulation streets include Concord Lane, Windhaven Lane, and Camden Lane. East-west circulation includes Jamestown Lane, Georgetown Lane, Morgantown Lane, Yorktown Lane, and Youngstown Lane.

Aerial: Existing Windhaven Site (Source: Google Maps)

Project Proposal. The project proponent has recently proposed to develop up to 750 apartment units on the 49.48 acre site, as a result of changing market demands. The proposal results in a density of 15.2 homes per acre, which exceeds the approved residential density. Thus, this proposal dictates that a Comprehensive Plan amendment and zone change would be needed to accommodate the apartment proposal; specifically to a RMF zone and Comprehensive Plan designation of Residential 15-30. The current apartment proposal results in a density that just marginally exceeds minimum zoning and Comprehensive Plan allowances, and just under half of maximum allowable density (nearly 1,500 apartments could be developed under these City designations). The reduced apartment densities

According to Spokane Municipal Code, the Residential Multifamily (RMF) zone "*is a medium-density residential zone. Allowed housing is characterized by one to four story structures and a higher percentage of building coverage than in the RTF zone. The major types of development will include attached and detached single-family residential, condominiums, apartments, duplexes, townhouses and row houses. The minimum and maximum densities are fifteen and thirty units per acre.*"

The Residential 15-30 land use is simply described within the City Comprehensive Plan as a "*designation that allows higher density residential use at a density of 15 to 30 units per acre.*"

Site access and internal circulation would be promoted as described previously. Primary access would be provided via the Barnes Road intersections with Forest Lane and Pamela Street. Secondary access would be provided by an extension of Jamestown Lane into the adjacent apartment complex. Pedestrian access only would be provided via Moose Street. Internal circulation would be promoted by three north-south and five east-west local streets.

Figure 1 provides a vicinity map locating Windhaven. Figure 2 provides the current site plan for the proposed apartment development. Note this plan will evolve with time. As such, this study was intentionally developed to review a high unit count for the site in order to present a worse-case analysis of project transportation impacts.

1.1.1 Project Scope

City transportation engineering staff has reviewed capacity conditions for primary roadways aligned within the Indian Trail neighborhood. To be clear, there are long term improvement needs confirmed within the area; in particular, the widening of Indian Trail Road to a four lane section between Lowell Avenue and Excell Avenue. However, city staff has been able to confirm transportation concurrency for Indian Trail roadways within the immediate future. This means they have been able to demonstrate that adequate capacity would generally be available to accommodate some traffic growth. Currently there are 12 development projects vested and approved via the Comprehensive Plan process.

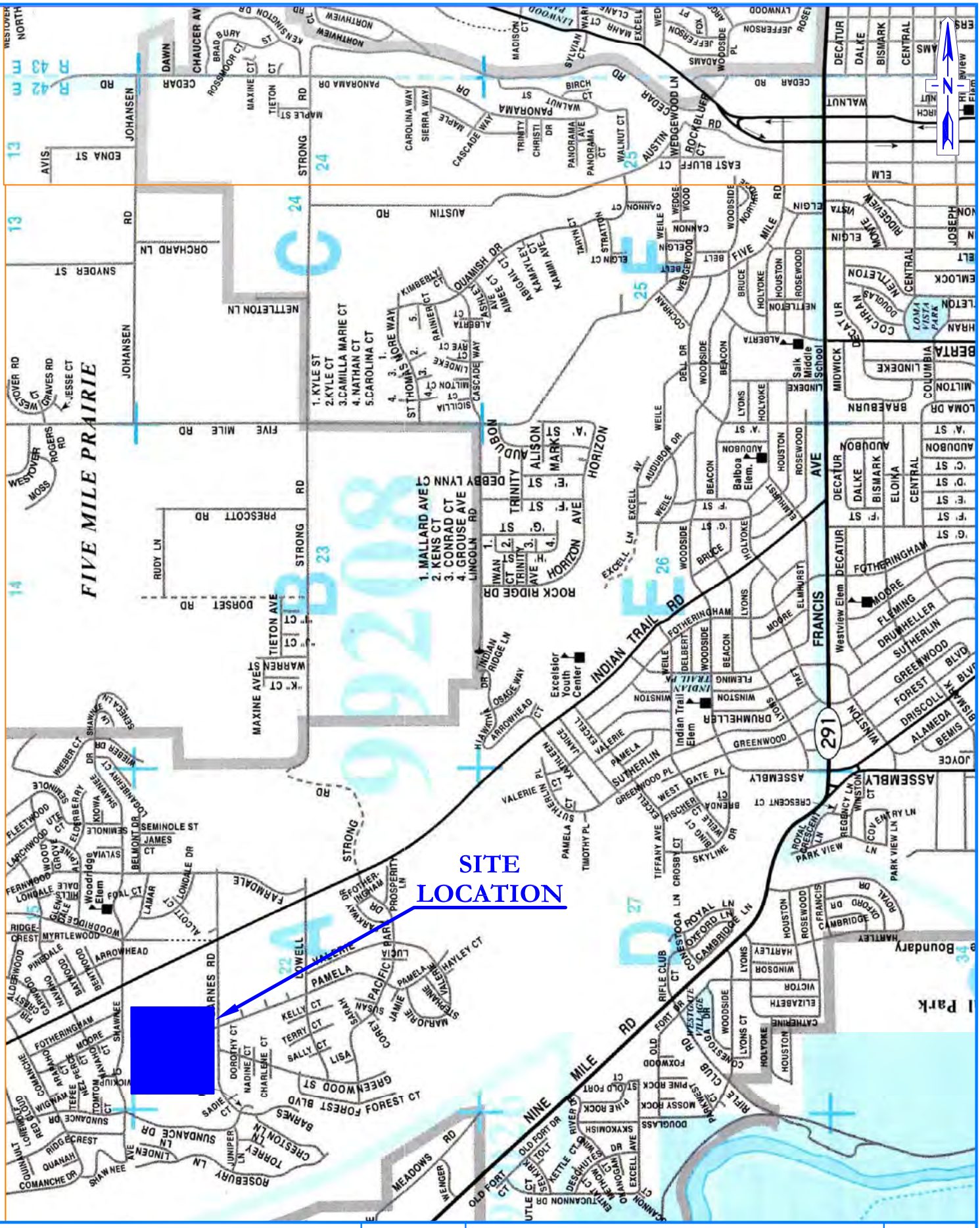
Windhaven First Addition is one of the development projects vested and addressed within the current Comprehensive Plan. As indicated, 286 single family homes were approved historically and, according to City resources, this development would be allowed to generate 210 trips during the AM peak hour and 271 during the PM peak hour of the work commute under the previous Comprehensive Plan and zoning approval.

According to comparisons developed using the *Trip Generation Manual* (ITE 9th Edition, 2012), the trips generated by 286 homes is equivalent to the trips generated by 460 apartment units. Thus, from a transportation perspective, 286 single family homes and 460 apartments are generally equivalent. A summary of this comparison is provided in Table 1.

Table 1. Vested Residential Land Use & Trip Comparisons

Residential Land Use	Dwelling Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single Family Homes (ITE Code 210)	286	65	145	210	179	92	271
General Apartment Units (ITE Code 220)	460	46	183	229	176	95	271

Transportation concurrency is reviewed within the City of Spokane based upon PM peak hour traffic conditions. As shown above, the trips generated by 286 homes and 460 apartments are equal during the PM peak hour. There is a minor differential during the AM peak hour. Trip generation was based upon equations that relate trips to dwelling units for single and multi-family homes. Further discussion on trip generation is provided within Section 3.2.



MORRISON MAIERLE, INC.
An Employee-Owned Company
Engineers
Surveyors
Scientists
Planners
316 W. BOONE
SUITE 360
Spokane WA 99201
Phone: (509) 991-8684
bwhite@m-m.net

DRAWN BY: WDW
CHK'D. BY: KB
APPR. BY: KB
DATE: 05-2016

WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

PROJECT NO.
5594.002

SITE LOCATION

FIGURE NUMBER
1

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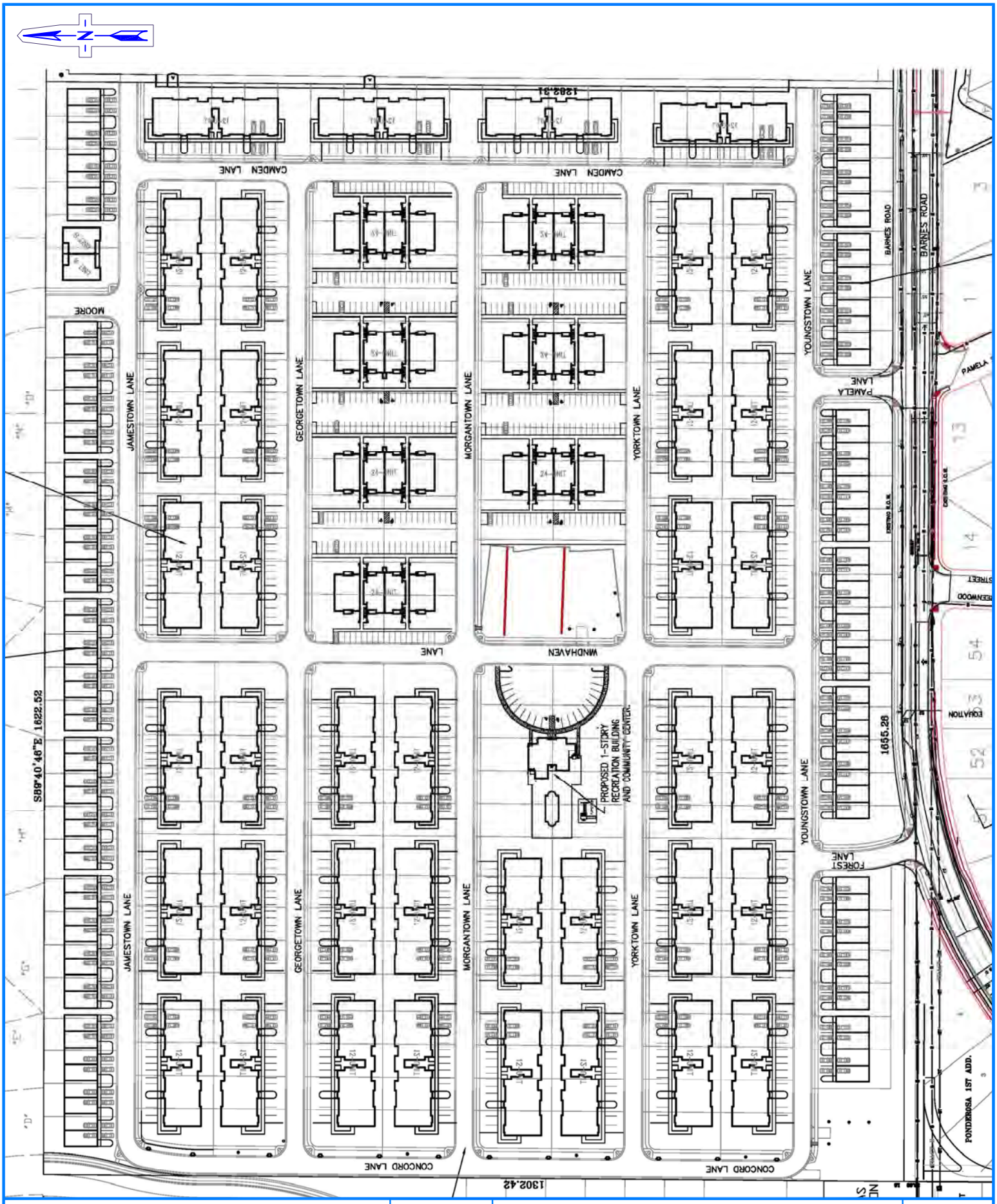

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An Employee-Owned Company
Engineers
Surveyors
Scientists
Planners
316 W. BOONE
SUITE 360
Spokane WA 99201
Phone: (509) 991-8684
bwhite@m-m.net

DRAWN BY: WDW
CHK'D. BY: KB
APPR. BY: KB
DATE: 05-2016

WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

PROJECT NO.
5594.002

PRELIMINARY SITE PLAN
(Source: JR Bonnet Engineering)

FIGURE NUMBER
2

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1.2 ANALYSIS SCOPE AND METHODOLOGY

The purpose of this TIA is to review the traffic and transportation impacts of the proposed development on vicinity arterials and recommend improvements and strategies, as needed, to mitigate impacts in order to assure adequate transportation capacities. This section describes the primary scope and methods used to evaluate traffic conditions and determine potential improvements for the project study area.

1.2.1 Project Scope

A TIA evaluates roadway capacity primarily through an examination of intersection operations. Congestion and increased vehicle delays are experienced more rapidly at intersections versus road segments (between intersections) due to the number and frequency of conflicts (i.e. turning vehicles and stopping or slowing movements).

The scope for this study was established in coordination with City of Spokane and Washington State Department of Transportation (WSDOT) engineering officials. Per direction, this study quantifies traffic operations and capacity based principally on intersection level-of-service (LOS), as performed by direction for the intersections of:

- Shawnee Avenue/Indian Trail Road
- Barnes Road/Indian Trail Road
- Strong Road/Indian Trail Road
- Indian Trail Road/Francis Avenue
- Alberta Street/Francis Avenue
- Ash Street/Francis Avenue
- Maple Street/Francis Avenue
- Barnes Road/Forest Lane (Project Access)
- Barnes Road/Pamela Lane (Project Access)

Per the direction of local agency staff, the analysis was performed for the AM and PM peak/commute hours of the weekday, which are the highest hours of capacity demand within this area of Spokane. The forecast analysis horizon year for this study is 2021, which is the completion and final occupancy year of the proposed development.

1.2.1 Methodology - Intersection Operations

Intersection capacity was evaluated using the level-of-service (LOS) methodologies of the *Highway Capacity Manual* (TRB, 2010). The *Highway Capacity Manual* (HCM) is a nationally recognized and locally accepted method of measuring traffic flow and congestion for intersections. Criteria range from LOS A, indicating free-flow conditions with minimal vehicle delays, to LOS F, indicating congestion with significant vehicle delays (and operational failures).

LOS for a signalized intersection is defined in terms of the average control delay experienced by all vehicles at the intersection, as measured over a specific time period such as a peak hour. LOS for a one or two-way stop controlled intersection or driveway is the function of average control delays experienced by vehicles in a particular approach or approach movement over a timeframe such as a peak hour. Typically, the stopped approach or movement experiencing the worst LOS is reported. Finally, LOS at an all-way stop-controlled intersection is defined by the average control delays experienced by all vehicles at the intersection, as with signals, but the LOS thresholds are associated with delays for unsignalized intersections.

Table 2 outlines the LOS criteria for signalized and unsignalized intersections from the *Highway Capacity Manual*. As shown, LOS thresholds, as a function of delay, vary between signalized

and unsignalized intersections. This is because driver tolerances for delay have been documented to be much higher at signalized versus unsignalized intersections.

Table 2. Intersection Level of Service Criteria

Level of Service	Signalized: Control Delay (sec/veh)	Unsignalized: Control Delay (sec/veh)
A	≤10	≤10
B	>10 – 20	>10 - 15
C	>20 – 35	>15 - 25
D	>35 – 55	>25 - 35
E	>55 – 80	>35 - 50
F	> 80	>50

Source: *Highway Capacity Manual* (TRB, 2010)

LOS was determined for this study using Synchro Version 9.1, (Trafficware, 2015). This software tool can apply the analysis methodologies of HCM 2010 and is a standard industry software application.

LOS thresholds for the City of Spokane are highlighted by "Transportation Concurrency Level of Service Standards", which is an administrative policy and procedure document available from the City clerk's office. Section 5.2.1.3 indicates LOS E is the threshold for "signalized arterial intersections along Principal or Minor arterials identified on Comprehensive Plan Map TR3." This standard applies to all signalized study intersections, as they are located along the principal arterials of Francis Avenue and Indian Trail Road. Section 5.2.2 indicates LOS E is the operational threshold for movements at unsignlaized intersections. Road improvements and/or transportation demand strategies may be required to help mitigate capacity issues, as determined via results that fall below City LOS thresholds.

1.2.2 Methodology – Vehicle Queues

Average and 95th percentile queue analyses were performed to provide guidance regarding turn pocket impacts for signalized intersections. Average queues are those most typically predicted to occur at an intersection with some frequency. 95th percentile queues represent near-maximum queue conditions predicted to occur only a few times during the peak hour. While it is not ideal to have 95th percentile queue potentials exceed turn lane/pocket storage length, it is acceptable so long as average queues can be accommodated. A turn lane/pocket issue is prevalent when average queues exceed storage length. Thus some form of improvement may need to be considered; typically in the form of signal phase adjustment, turn lane/pocket adjustment, and sometimes even the provision of a second turn lane.

Queues are presented in terms of total "stacking" vehicles with the equivalent queue length provided in feet. For this study, an average length of 25-feet was used per vehicle, as recommended by the HCM, and via standard industry practices. This space includes the length of the vehicle plus spacing between vehicles. Queue determinations were provided using Synchro, which also bases evaluations on HCM methodologies.

1.2.3 Methodology – Lane Capacity

A lane capacity analysis was developed as a secondary measure and method for evaluating traffic conditions specifically for Indian Trail Road. This analysis was performed due to the "bottleneck" that exists along the roadway; caused by a narrowing of the arterial from four lanes south of Excell Avenue to three lanes north.

Table 2.2 SRTC Regional Demand Model Street Typology

Street Type	Type Number	Capacity (vphpl)	Operating Speed
Rural Freeway	1	2000	70
Rural Local Street	9	500	25
I-90, SR 195 to Freya-NSC	10	1800	60
Urban Interstate	11	2000	60
Urban Expressway	12	2000	60
Urban Arterial	14	1100	40
Urban Arterial – CBD	15	900	30
Collector Arterial	17	900	35
Urban Arterial-CBD–One-way	18	800	30
Local Street	23	500	25
Neighborhood Collector	20	600	30
Ramps	50	1600	40
Rural Highways	52	1800	60
Urban Arterial Ramp	53	1000	50
I-90 Viaduct Ramp, SR 195-Freya	54	1200	40
Local Road	60	1000	25
Exclusive Light-rail Transit Link	66	1000	35
Fairchild AFB	99	500	25

Hourly Lane Capacity Thresholds (Source: SRTC)

The lane capacity analysis was performed based upon peak hourly volume data provided by the Year 2011-2035 Spokane Metropolitan Transportation Plan (SRTC, 2011). Generally, the Plan provides vehicle per hour per lane (vphpl) capacity thresholds distinguished by functional classification and operating speed. According to this table, the best approximation of Indian Trail Road is that of a 30 mph urban arterial collector arterial; both with a practical capacity of 900 vphpl. Therefore, this was used as the basis for reviewing lane capacities for the roadway.

Note these are capacity thresholds typically associated and used with the development of a forecast travel demand model and are not typically used as a primary means for evaluating capacities on city roadways. However, this secondary means was sought specifically as a method for reviewing "through" traffic capacity on Indian Trail Road, as primary analysis measures focus on intersection operations.

Thus, the conclusions of this TIA were primarily derived from intersection analyses and the methodologies of the HCM. Secondary conclusions were derived from lane capacity analyses, and other considerations such as travel speed and queuing.

2 EXISTING CONDITIONS

This section describes existing traffic conditions within the project study area. Described are study roadways, current traffic volumes, and existing operations and capacity conditions.

2.1 ROADWAY NETWORK

The study focuses on traffic operations for a number of intersections located along the roadways of Indian Trail Road, Barnes Road, Strong Road, Francis Avenue, Alberta Street, Ash Street, and Maple Street. A description of study roadways is provided as follows, in order of descending functional classification:

- **Francis Avenue.** Also designated State Route 291, Francis Avenue is an u*rban principal arterial*. The roadway has a five lane cross section, which includes a two-way left-turn lane (TWLTL), with contiguous sidewalk, curb, and gutter along both sides of the roadway. The posted speed limit is 35 mph within the study area. The current City traffic flow map indicates the arterial supports between 26,000 and 29,000 average daily traffic (ADT) within the study area east of Indian Trail Road, dropping to 11,900 ADT west.
- **Indian Trail Road.** This *urban principal arterial* has a speed limit of 35 mph within the City of Spokane. City traffic flow map indicates the roadway supports about 17,100 ADT north of Francis Avenue, dropping to 11,000 ADT north of Strong Road. Curb, sidewalk, and gutter are contiguous on both sides of the roadway throughout the project study area. Precluding intersection configurations, general lane geometrics are as follows:
  - Four travel lanes immediately north of Francis Avenue to about Elmhurst Avenue (approximate 500 foot section).
  - Five lanes (including a TWLTL) adjacent to Indian Trail Center between Elmhurst Avenue and Holyoke Avenue (nearly a 900 foot section).
  - Four lanes from Holyoke Avenue north to about Excell Avenue (about a 3,600 foot section).
  - Three lanes (including a TWLTL) north of Excell Avenue to Lowell Avenue (about a 5,100 foot section). A traffic “bottleneck” has been noted to occur in the four to three lane transition area within the vicinity of Excell Avenue.
  - Four lanes with two southbound, one northbound, and one TWLTL between Lowell Avenue and Barnes Road (nearly a 1,500 foot section) adjacent to Sundance Plaza.
  - Three lanes (including a TWLTL) north of Excell Avenue to nearly City limits (section length is greater than a mile).
- **Maple Street & Ash Street Couplet.** These are urban principal arterials throughout the majority of the City. Maple Street is a two-lane northbound arterial and Ash Street a two lane southbound arterial; both with posted speeds of 30 mph within the vicinity of Francis Avenue. Sidewalk, curb, and gutter are contiguous along both sides of both roadways within the project study area. City traffic flow maps indicate about 25,000 ADT south and nearly 28,000 ADT north of Francis Avenue on the couplet.
- **Alberta Street.** This is an *urban minor arterial* with a three-lane cross-section, including a TWLTL, and a posted speed limit of 30 mph south of Francis Avenue. North of Francis Avenue, this *local street* with a two-lane cross-section and posted speed limit of 25 mph. Curb, gutter, and sidewalk are contiguous along the arterial. Traffic flow maps indicate the roadway supports 10,600 ADT south of Francis Avenue with no counts to the north.

- **Barnes Road.** This is an *urban major collector* for approximately ½ mile on either side of Indian Trail Road. The collector primarily has a two-lane cross-section east of Indian Trail Road. The roadway has a five-lane cross section for about 1,300 feet west of Francis Avenue, adjacent to Sundance Plaza; continuing an approximate 2,000 additional feet as a three lane roadway (including a TWLTL). The speed limit is 25 mph within the study area. Curb, gutter, and sidewalk are contiguous along the majority of the roadway. City traffic flow maps indicate the roadway supports about 2,000 ADT on either side of Indian Tail Road.
- **Shawnee Avenue.** This is currently classified as an *urban major collector* within the City. The roadway has a two-lane cross section, improved with sidewalks, curb, and gutter. The posted speed limit is 25 mph with a 20 mph school zone west of Indian Trail Road. The roadway supports about 2,300 ADT.
- **Strong Road.** This is currently classified as an *urban major collector* within the City. The roadway has a two-lane cross section, improved with sidewalks, curb, and gutter west of Indian Trail Road. A 40-foot wide, unimproved section (a gravel roadway) is aligned east of Indian Trail Road. The posted speed limit is 25 mph. The roadway is estimated to support less than 2,000 vehicles per day within the study area.

A summary of existing intersection turn lane locations and traffic control conditions (signal, one-way, two-way, or all way stops) is provided in Table 3. Shown are different traffic movements at intersections and whether a turn-lane is provided. If no specific lane is shown, then turns are performed from adjacent, shared through-lane. Also indicated are traffic control conditions for the intersection. Controls and lanes are denoted with an "X". Turn lanes are denoted with a "1" for a single-lane, "2" for a double-lane, etc.

Table 3. Existing Intersection Geometrics and Traffic Controls

Intersection	Traffic Control				Intersection Geometrics							
	Traffic Signal	One-Way Stop	Two-Way Stop	All-Way Stop	NB Left Turn Lane	NB Right Turn Lane	SB Left Turn Lane	SB Right Turn Lane	WB Left Turn Lane	WB Right Turn Lane	EB Left Turn Lane	EB Right Turn Lane
Shawnee Ave/Indian Trail Rd	X	-	-	-	1	1	1	1	1	-	1	-
Barnes Rd/Indian Trail Rd	X	-	-	-	1	1	1	1[3]	1	-	1	-
Strong Rd/Indian Trail Rd	X	-	-	-	1	1	1	1	-	-	1	-
Indian Trail Rd/Francis Ave	X	-	-	-	-	-	2[1]	-	-	1	1	-
Alberta St/Francis Ave	X	-	-	-	-2[1]	-	1	-	1	-	1	-
Ash St/Francis Ave	X	-	-	-	-	-	1	1	1	-	-	-
Maple St/Francis Ave	X	-	-	-	2[2]	-	-	-	-	-	1	-
Barnes Rd/Forest Ln	-	X	-	-	-	-	-	-	-	-	1	-
Barnes Rd/Pamela Ln	-	-	X	-	-	-	-	-	1	-	1	-

1. Double left-turn lane with right-turns shared from outer left-turn lane.
2. Double left-turn lane with through movements shared from inner left-turn lane.
3. Widened pocket that continues as a through lane south of intersection.

2.2 TRAFFIC COUNTS

Traffic counts were collected specifically for this study on typical weekdays in March and April of 2016 (Tuesday through Thursday). Traffic counts were performed in the morning between 7:00 and 9:00 AM and in the afternoon/evening between 4:00 PM to 6:00 PM in order to identify the AM and PM peak hours of commute traffic activity for each intersection.

The peak volume for each intersection was used in traffic analyses, respectively, in order to assure a worst-case review of capacity demands. As such, the peak hour did vary between intersections during the morning and afternoon timeframes. With that said, a prevalent 7:00 to 8:00 AM peak hour was noted on Indian Trail Road in the morning. A 5:00 to 6:00 PM peak was noted at nearly all study intersections during the evening. Original count worksheets are provided in Section B of the technical Appendix.

Typically, raw counts are used directly in LOS analysis. However, in some situations, a reconciliation of arrival versus departure volumes must be performed to fully consider travel demands at intersection. A departure volume is noted as vehicle traffic crosses the stop-bar and enters an intersection; typically recorded and used in analyses as specific through and turn movements are identified. However, in some instances arrival volumes must also be recorded as vehicle traffic does not always make it through the stop-bar during a typical signal cycle. Residual traffic must therefore wait in queues until the next green phase (or more) allows them to clear the intersection. The difference in arrival less departure traffic represents additional travel demands upon through and turning movements at an intersection. Thus, this differential is recorded and then combined with base/raw traffic counts in order to fully review travel demands upon an intersection.

Upon scope coordination with City and State agencies, it was determined there were particular approaches of concern where vehicle traffic did not clear the stop-bar and had to wait through an additional signal cycle on Francis Avenue and Indian Trail Road. The movements and timeframes of concern are as follows:

- Eastbound Alberta Street/Francis Avenue - AM Peak Hour
- Eastbound Ash Street/Francis Avenue - AM Peak Hour
- Southbound Indian Trail Road/Francis Avenue - AM Peak Hour
- Northbound Maple Street/Francis Avenue - PM Peak Hour
- Westbound Maple Street/Francis Avenue - PM Peak Hour
- Westbound Indian Trail Road/Francis Avenue - PM Peak Hour

Follow-up counts were performed in March 2016 for the traffic movements specified, for the respective AM and PM peak hours noted through weekday counts. Data collected included arrival volumes, departing traffic (crossing the stop-line), and then the remaining vehicles that queue following the end of the green signal phase. Counts were performed for every signal cycle, with residential queues/vehicle identified following many signal cycles. These residual vehicles were summarized for each approach noted above and combined, as needed, with raw counts to assure maximum travel demands would be assessed with this TIA.

A summary of this comparison is provided in Table 4 for the AM and PM peak hours. The original count worksheets are provided in Technical Appendix B. The original count worksheets show arrival, departure, and queue volumes on a per cycle basis.

Table 4. Arrival, Departure, and Queue Volume Comparisons					
Location & Approach	Timeframe	Original Count	Additional Arrival Count	Additional Departure Count	Queue Volume
Eastbound Alberta St/Francis Ave	AM Peak	1,175	1,228	193	1,413 √
Eastbound Ash St/Francis Ave[1]	AM Peak	1,053	1,029	61	1,090 √
Southbound Indian Trail Rd/Francis Ave	AM Peak	1,113	1,129	20	1,149 √
Northbound Maple St/Francis Ave	PM Peak	1,374	1,406	31	1,437 √
Westbound Maple St/Francis Ave	PM Peak	1,362	1,362	28	1,390 √
Westbound Indian Trail Rd/Francis Ave	PM Peak	1,636 √	997	7	1,004
1. Through volume only impacted.					

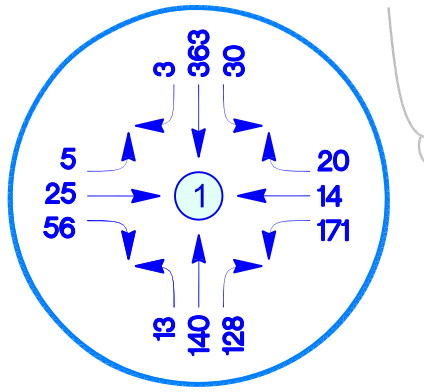
As shown, the majority of follow up counts exceed original counts when factoring in the residential queues (i.e. the balance remaining between arrival and departure counts). The only exception occurs within the westbound approach to the Indian Trail Road/Francis Avenue intersections. As such, the higher of count volumes were used in the analysis, as denoted with a check (√). The resulting traffic gains for these approaches were proportioned to each movement based on turning volume count data. Figure 3 and Figure 4 provide a summary of the resulting AM and PM peak hour counts for study intersections.

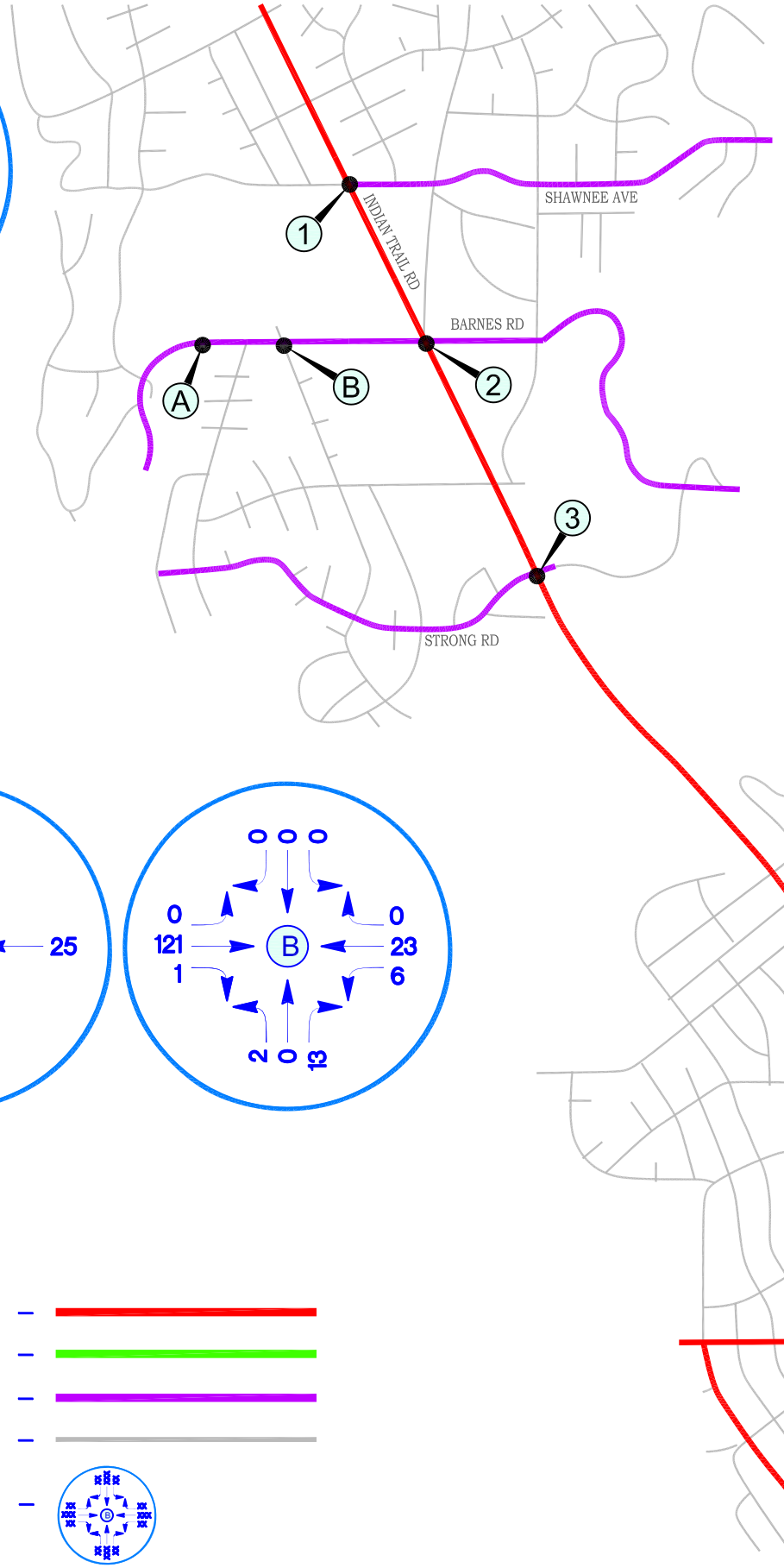
Speed Counts. Speed counts were performed at three locations to further review the impact of the "bottleneck". Counters were placed on Indian Trail Road: 1) north of Weile Avenue (south of bottleneck); 2) north of Kathleen Avenue (within bottleneck); and 3) north of Lowell Avenue (north of Bottleneck). Average speeds and corresponding ADT are summarized in Table 5.

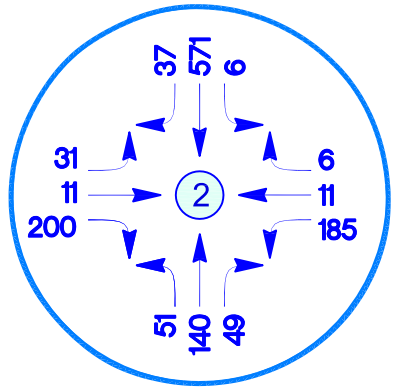
Table 5. Indian Trail ADT and Speed Counts - AM and PM Peak Hours					
Indian Trail Road	ADT	Average Speed - Northbound		Average Speed - Southbound	
		AM Peak	PM Peak	AM Peak	PM Peak
N/of Weile Ave	17,299	36.5	36.8	36.0	35.7
N/of Kathleen Ave	16,821	37.9	36.8	34.8	37.9
N/of Lowell Ave	13,555	34.3	31.9	33.4	33.2

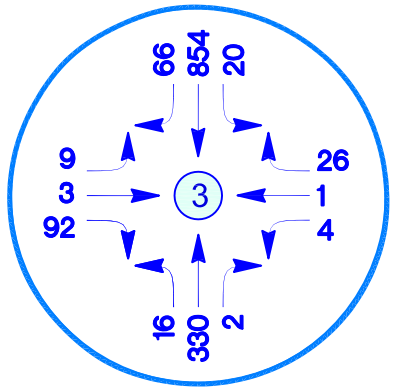
As shown, ADT counts range between 17,300 ADT south to 13,555 north of the bottleneck. The posted speed limit is 30 mph. Counts indicate average speeds exceed the posted limit by 3 to nearly 8 mph throughout analysis limits in both directions. There is a minimal difference in average speeds between the four lane section south of the bottleneck and the three lane section within the bottleneck.

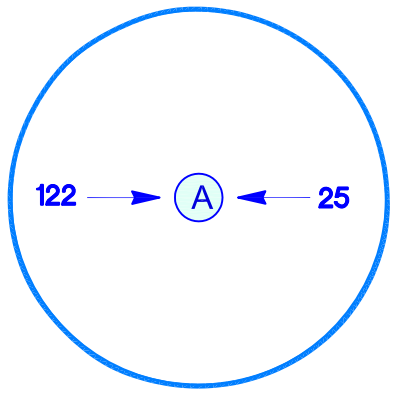
School Traffic. This statement has been provided to simply acknowledge that all traffic counts were performed while local schools were in operation within the study area. Area schools can generate traffic that results in higher demand on City roadways. Thus, counts were performed to assure the activities of schools such as Indian Trail Elementary, Woodridge Elementary, Westview Elementary, Balboa Elementary, and Salk Middle School are addressed.

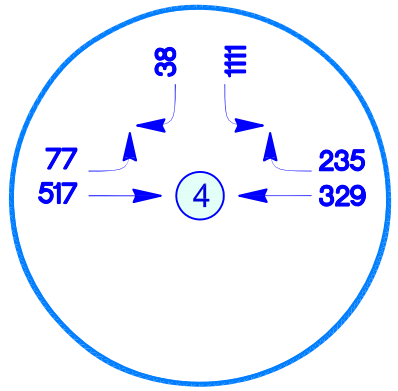


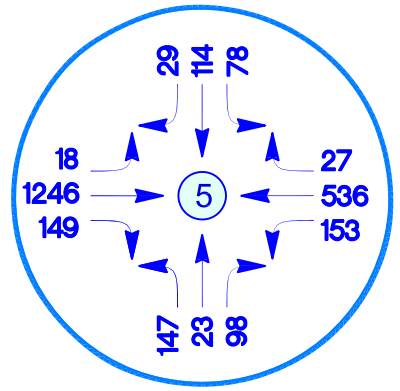


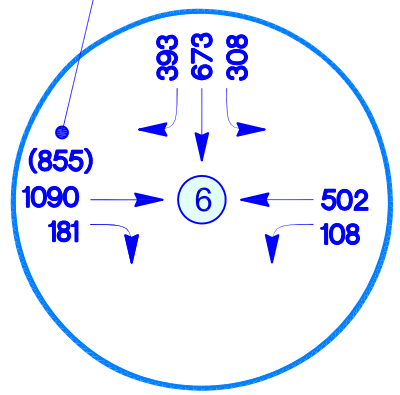


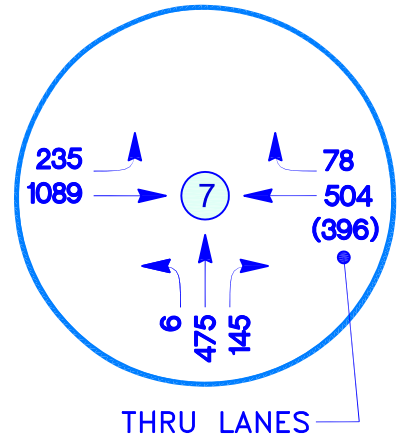


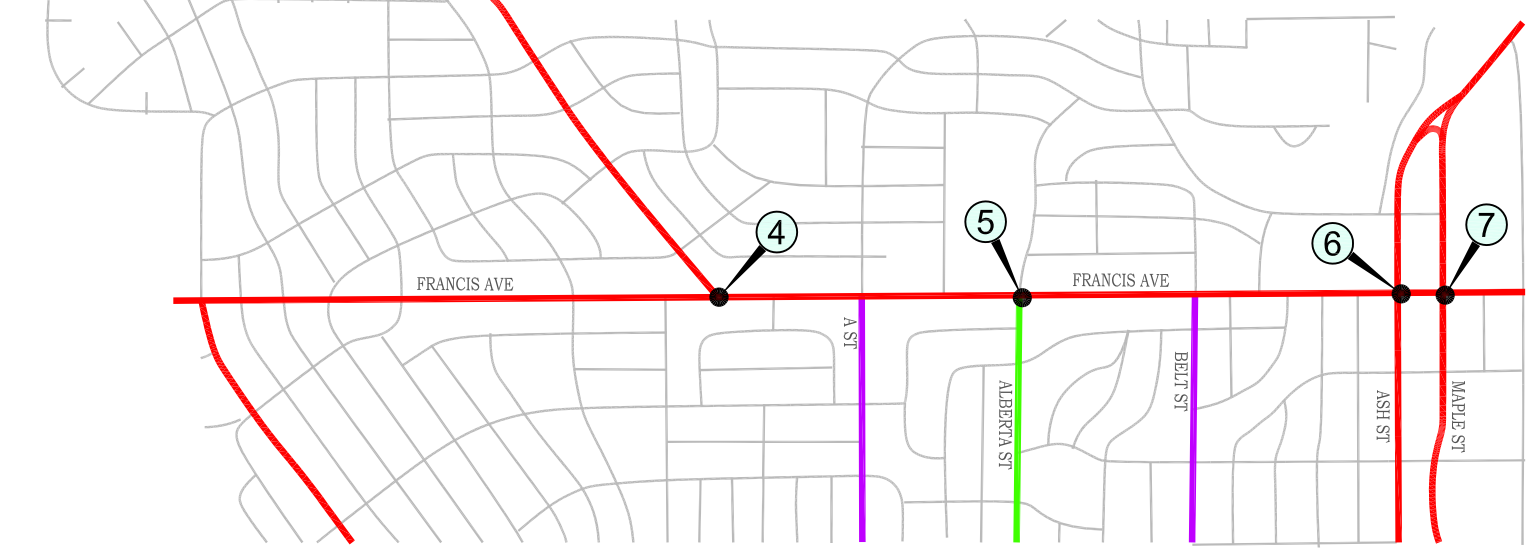












PRINCIPAL ARTERIAL –

MINOR ARTERIAL –

COLLECTOR STREET –

LOCAL STREET –

INTERSECTION TURNING MOVEMENTS –

MORRISON MAIERLE, INC.
An Employee-Owned Company
Engineers
Surveyors
Scientists
Planners
1 Engineering Place
Helena MT 59602
Phone: (406) 442-3050
Fax: (406) 442-7862

DRAWN BY: KB
CHK'D. BY: KB
APPR. BY: KB
DATE: 05/2016

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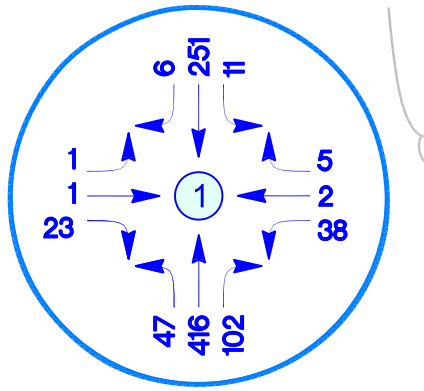
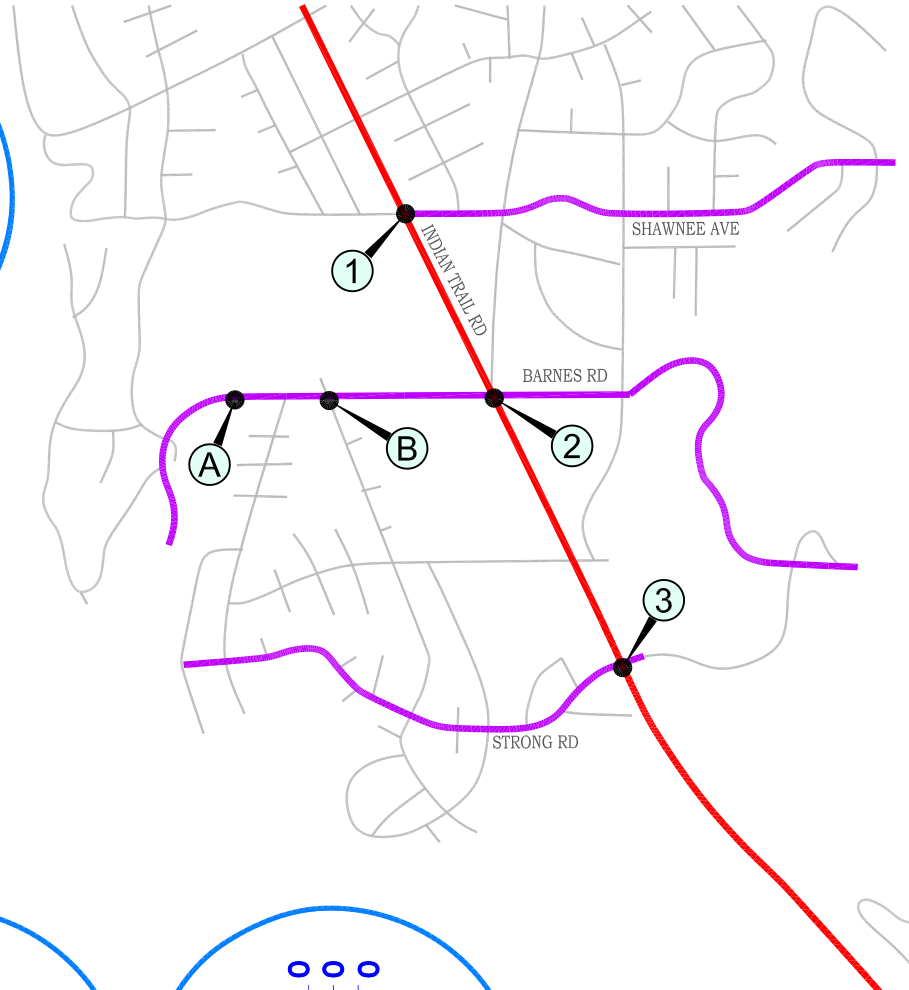
WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

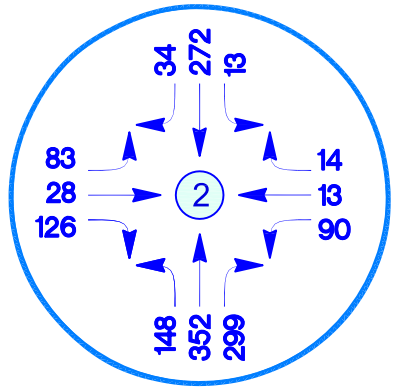
EXISTING TRAFFIC VOLUMES - AM PEAK HOUR

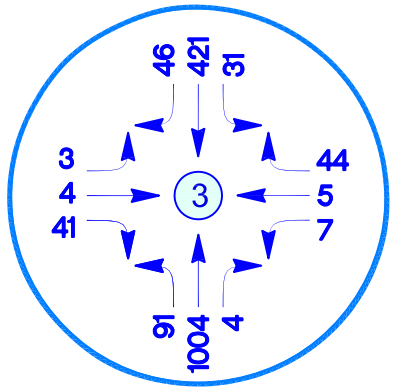
PROJECT NO.
5447.001

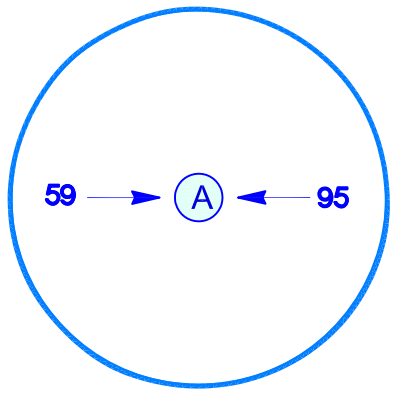
FIGURE NUMBER
FIG. 3

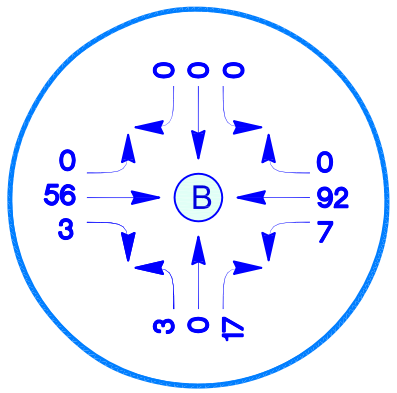


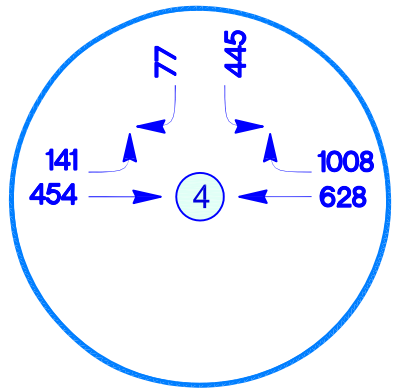


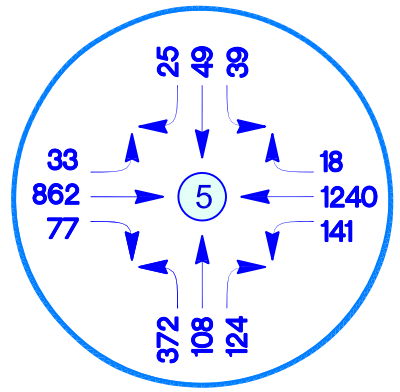


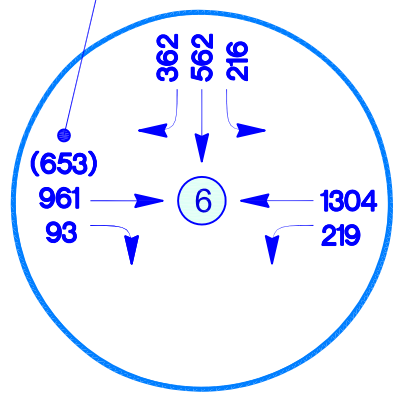


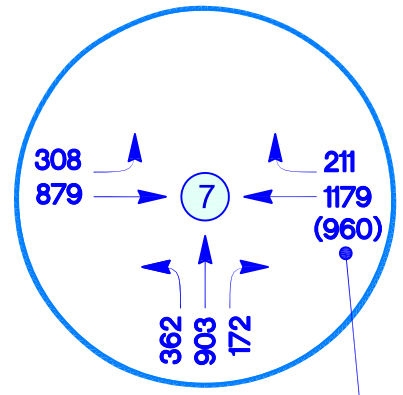


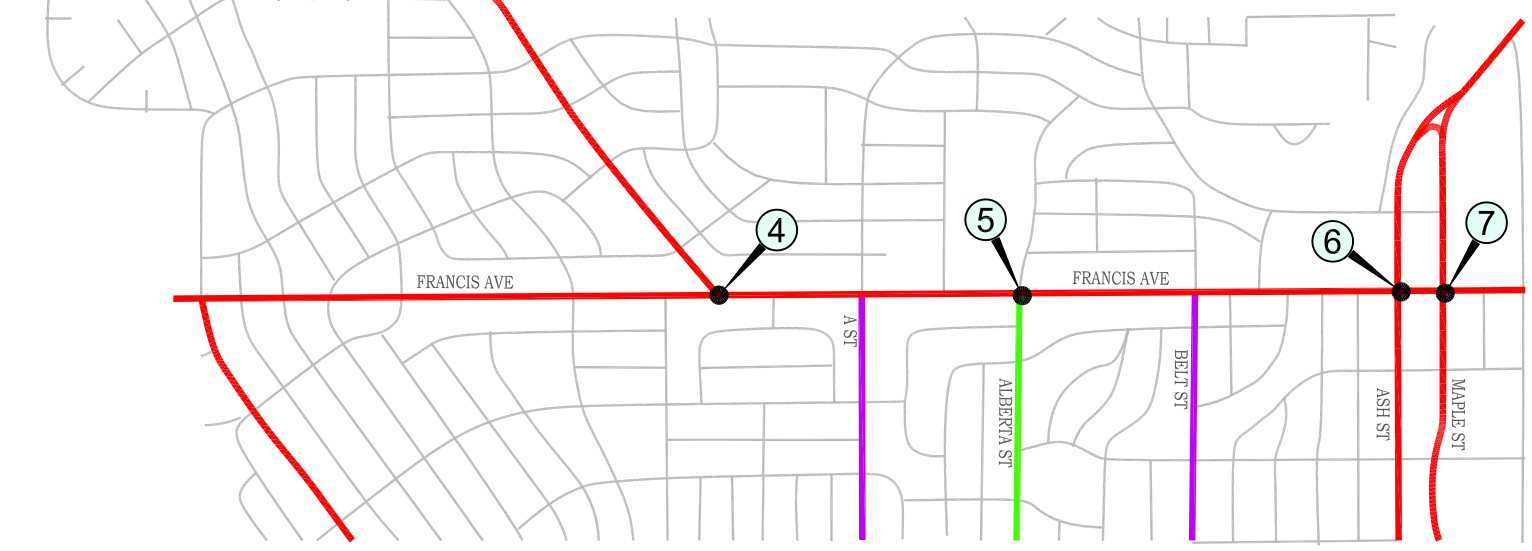












PRINCIPAL ARTERIAL –

MINOR ARTERIAL –

COLLECTOR STREET –

LOCAL STREET –

INTERSECTION TURNING MOVEMENTS –

MORRISON MAIERLE, INC.
An Employee-Owned Company
Engineers
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1 Engineering Place
Helena MT 59602
Phone: (406) 442-3050
Fax: (406) 442-7862

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CHK'D. BY: KB
APPR. BY: KB
DATE: 05/2016

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WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

EXISTING TRAFFIC VOLUMES - PM PEAK HOUR

PROJECT NO. 5447.001

FIGURE NUMBER FIG. 4

2.3 TRAFFIC OPERATIONS & CAPACITY

The LOS and capacity analyses were performed based on a review of the adjusted traffic volumes summarized in Section 2.2 and the geometric conditions described in Section 2.1. Signal timing data was provided by City of Spokane staff via Synchro files and timing cards.

This data includes information such as phase minimum and maximum splits, all-red and yellow times, pedestrian timing data, additional vehicle passage and gaps, etc.; generally the working parameters of an actuated traffic signal. No optimization or adjustment was made to these files as to maintain precise City timings noted in the field, including coordination details for the Ash and Maple Street intersections with Francis Avenue.

Table 6 provides a summary of LOS for the AM and PM peak hours. Also shown are average control vehicle delays for each intersection. Note there are no project turning movements that currently occur at the Forest Lane and Pamela Lane intersections with Barnes Road. As such, these intersections were not included in the analysis.

Table 6. Existing LOS and Delay - AM and PM Peak Hours

Signalized Intersections	AM Peak		PM Peak	
	LOS[1]	Delay[2]	LOS[1]	Delay[2]
Shawnee Ave/Indian Trail Rd	B	17.3	A	7.7
Barnes Rd/Indian Trail Rd	B	18.1	B	14.4
Strong Rd/Indian Trail Rd	A	9.7	B	18.9
Indian Trail Rd/Francis Ave	B	12.3	A	7.9
Alberta St/Francis Ave	D	36.4	C	32.2
Ash St/Francis Ave	C	22.3	C	20.4
Maple St/Francis Ave	B	17.4	D	38.8

1. LOS = Levels-of-Service
2. Del = Delay in seconds

As shown, all study intersections currently function within acceptable LOS ranges, as no signalized intersection functions below LOS E. This indicates that no capacity improvements would be warranted on the basis of existing traffic operations, as there is sufficient roadway capacity. LOS summary worksheets are provided in Section C of the Technical Appendix.

Queue Potentials. Existing queue potentials were reviewed for study intersections. As indicated, both average and 95th percentile queues are considered. Most acceptable conditions are those where average and 95th percentile queues do not exceed lane/pocket storage. Tolerable conditions are those where average queues do not exceed lane storage/pocket length, even when 95th percentile queues do exceed storage. Unacceptable conditions are noted where both average and 95th percentile queues exceed available lane/pocket storage.

Summary queue conditions are provided in Table 7 for the AM and PM peak hours. Again, queues are represented in terms of vehicle demands versus vehicle storage. A sense of length

impacts is determined roughly by multiplying vehicles times a transportation industry spacing standard of 25 feet.

Table 7. Existing Queue Potentials - AM and PM Peak Hours

Signalized Intersections	Lane Capacity	AM Peak		PM Peak	
		Avg.	95%	Avg.	95%
Shawnee Ave/Indian Trail Rd					
- Northbound Left-Turn Lane	7 vehicles[1]	1 vehicle	1 vehicles	1 vehicle	1 vehicle
- Northbound Right-Turn Lane	3 vehicles	0 vehicle	1 vehicle	1 vehicle	1 vehicle
- Southbound Left-Turn Lane	3 vehicles[1]	1 vehicle	1 vehicle	1 vehicle	1 vehicle
- Southbound Right-Turn Lane	3 vehicles	0 vehicle	0 vehicle	1 vehicle	1 vehicle
- Westbound Left-Turn Lane	3 vehicles	5 vehicle	6 vehicles	1 vehicle	2 vehicles
- Eastbound Left-Turn Lane	3 vehicles	1 vehicle	1 vehicles	0 vehicle	1 vehicles
Barnes Rd/Indian Trail Rd					
- Northbound Left-Turn Lane	8 vehicles[1]	1 vehicle	2 vehicles	2 vehicles	5 vehicles
- Northbound Right-Turn Lane	5 vehicles	0 vehicle	1 vehicle	1 vehicle	5 vehicles
- Southbound Left-Turn Lane	7 vehicles[1]	1 vehicle	1 vehicle	1 vehicle	1 vehicle
- Westbound Left-Turn Lane	6 vehicles	3 vehicles	6 vehicles	1 vehicle	3 vehicles
- Eastbound Left-Turn Lane	4 vehicles	1 vehicle	2 vehicles	1 vehicle	3 vehicles
Strong Rd/Indian Trail Rd					
- Northbound Left-Turn Lane	7 vehicles[1]	1 vehicle	1 vehicle	1 vehicle	2 vehicles
- Northbound Right-Turn Lane	4 vehicles	0 vehicle	0 vehicle	0 vehicle	0 vehicle
- Southbound Left-Turn Lane	7 vehicles[1]	1 vehicle	1 vehicle	1 vehicle	1 vehicle
- Southbound Right-Turn Lane	4 vehicles	1 vehicle	1 vehicle	0 vehicle	1 vehicle
- Eastbound Right-Turn Lane	8 vehicles	1 vehicle	2 vehicles	0 vehicle	1 vehicle
Indian Trail Rd/Francis Ave					
- Westbound Right-Turn Lane	16 vehicles[2]	0 vehicle	2 vehicles	1 vehicle	7 vehicles
- Eastbound Left-Turn Lane	2 vehicles	1 vehicle	2 vehicles	1 vehicle	3 vehicles
Alberta St/Francis Ave					
- Northbound Left-Turn Lane	9 vehicles[1]	4 vehicles	7 vehicles	8 vehicles	17 vehicles
- Southbound Left-Turn Lane	4 vehicles	2 vehicles	4 vehicles	1 vehicle	3 vehicles
- Westbound Left-Turn Lane	8 vehicles[1]	3 vehicles	8 vehicles	2 vehicles	5 vehicles
- Eastbound Left-Turn Lane	8 vehicles[1]	1 vehicle	1 vehicle	1 vehicle	2 vehicles
Ash St/Francis Ave					
- Southbound Left-Turn Lane	21 vehicles	6 vehicles	9 vehicles	5 vehicles	8 vehicles
- Southbound Right-Turn Lane	21 vehicles	4 vehicle	7 vehicles	7 vehicles	12 vehicles
- Westbound Left-Turn Lane	20 vehicles[1,3]	2 vehicles	6 vehicles	6 vehicles	7 vehicles
Maple St/Francis Ave					
- Northbound Left-Turn Lane	13 vehicles	1 vehicle	1 vehicle	9 vehicle	16 vehicle
- Eastbound Left-Turn Lane	20 vehilces[1,3]	6 vehicles	8 vehicles	9 vehicles	16 vehicles

1. Transitions into a TWLTL, so additional storage can be available.
2. Free movement which turns into a designated receiving lane, so queues not as critical.
3. The designated left-turn lane is broken by an intersection so queue pocket is a two-length measurement.

As shown, the majority of average queues are accommodated within available turn lane/pocket lengths, which represent acceptable or tolerable conditions. The only exception occurs within the westbound left-turn lane for the Shawnee Road/Indian Trail intersection. Both analytically and through visual inspection in the field, queues extend beyond the available turn pocket for about 10 to 15 minutes of the peak hour(s) as a result of activities associated with Woodridge

Elementary school. Outside these short timeframes, queue activity is minimal; thus, there would be minimal cost-benefit to extending the lane for a 20 to 30 minute queue impact per day.

95th percentile exceptions are noted at the following locations:

- Shawnee Avenue/Indian Trail Road – Westbound left turn 95th percentile queues exceed storage by 3 vehicles during the AM peak hour.
- Indian Trail Road/Francis Avenue – Eastbound left-turn 95th percentile demands exceed storage by one vehicle during the PM peak hour.
- Alberta Street/Francis Avenue – Northbound left-turn 95th percentile queues exceed storage by 8 vehicles; although there is a shared left-turn lane at this intersection also. As such, this impact may be somewhat overstated during the PM peak hour.

Indian Trail Lane Capacity. Lane capacities were reviewed for three count locations on Indian Trail Road: 1) north of Weile Avenue (south of bottleneck); 2) north of Kathleen Avenue (within bottleneck); and 3) north of Lowell Avenue (north of Bottleneck). As indicated, a practical lane capacity is 900 vphpl as based on information provided by the SRTC. A summary of existing approach counts versus capacity is provided in Table 8 for the AM and PM peak hours.

Note the lane capacity analysis is based on a review of through-lane capacity only (northbound and southbound travel lanes). A TWLTL helps traffic operationally as it accommodates neighborhood turning traffic, but it has minimal influence on the movement of through traffic.

Table 8. Existing Indian Trail Lane Capacity - AM and PM Peak Hours

	Capacity			AM Peak Hour			PM Peak Hour		
Indian Trail Road	NB	SB	Tot	NB	SB	Tot	NB	SB	Tot
N/of Weile Ave	1,800	1,800	3,600	287	1,114	1,401	1,099	450	1,549
N/of Kathleen Ave	900	900	1,800	283	1,151	1,434	1,085	449	1,534
N/of Lowell Ave	900	900	1,800	246	954	1,200	807	384	1,191

As shown, lane capacity is sufficient within the four lane section of Indian Trail north Road north of Weile Avenue. However, existing counts are shown to exceed directional lane capacities within the bottleneck area north of Kathleen Avenue. Specifically, counts exceed southbound lane capacities during the AM peak hour and northbound capacities during the PM peak hour, by approximately 200 to 250 vehicles. There is minor lane capacity exceptions noted north of Lowell Avenue, but overall capacity appears to be sufficient north of the bottleneck.

This review was based on data collected from machine counters. There is some difference between approach volumes from these counts versus turn movement counts because: 1) machine and tube counts were performed on different days and 2) differences in count location.

2.4 TRANSIT

Spokane Transit Authority (STA) operates one accessible route within reasonable vicinity of Windhaven. STA Route 23 “Maple/Ash” accesses the Indian Trail neighborhood on weekdays

only, with no service provided on weekends. The weekday route operates on a 30 minute rotation, operating along Indian Trail Road between 7:00 AM and 6:30 PM. The route circulates between the downtown Plaza and Meadow Park Glen (a bus turnaround north of Blackfoot Avenue) principally via Monroe Street, Broadway Avenue, the Maple/Ash Couplet, Rowan Street, Alberta Street, Francis Avenue, and Indian Trail Road.

The nearest transit stops to Windhaven are located at the Barnes Road/Indian Trail Road intersection. Located approximately ¼ mile to the east, these stops are within reasonable walking distance for typical transit users.

2.5 PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian access/mobility and circulation is generally well-served within the project study area. This supposition is based on the consideration of sidewalk being available on most arterial roadways leading to/from the development. Specifically, sidewalk is available between the development and destinations such as STA transit access, the nearby Sundance Plaza shopping center (Albertsons, Rite Aid, Starbucks, Subway, and other shops and restaurants), Pacific Park (on Lowell Avenue), and the Indian Trail Spokane public library.

According to the Spokane Regional Transportation Council website, Indian Trail Road and Barnes Road are two designated bike routes within the project vicinity. Both roadways are designated as "Shared Roadway" routes, defined as a select roadway allowing both vehicular traffic and bicycle traffic to share the street. There is no signage, striping, or designated bike lanes along these types of bicycle routes.

3 FUTURE 2021 TRAFFIC CONDITIONS

This section summarizes year 2021 future traffic conditions. Described are future roadway network changes, future traffic volumes, and forecast traffic operations and capacity.

3.1 ROADWAY NETWORK

Project One. An improvement project is programmed and fully funded for the study area. *The City of Spokane Six Year Capital Improvement Program* (City of Spokane, 2016) highlights the Barnes Road, Phoebe to Strong "Safety" project programmed for construction in year 2017. The project includes the construction of a two lane roadway with offset sidewalks constructed about 2,200 feet between Phoebe Drive (west) and Strong Road (east).

The project will improve access to the Five Mile neighborhood (east of the Indian Trail neighborhood) and north of Spokane, as opposed to continued and lengthier travel via Francis Avenue, the Maple/Ash couplet, and/or other arterials. The project is anticipated to divert 80 percent of existing traffic turning to/from the east at the Strong Road/Indian Trail Intersection to the new connection via Barnes Road. In addition, future development trips are anticipated to use the new roadway, as described in the next section.

Given this is programmed and fully funded prior to the year 2021 analysis/horizon year of this study, the capacity benefit from this improvement project was included in forecast analyses.

Barnes Rd Improvement Alignment (Source: City)

Project Two. The North Indian Trail Road Widening project has been incorporated into the City of Spokane Transportation Impact Fee program. The project includes the widening of Indian Trail Road with two through lanes constructed between Barnes Road (north) and Excell Avenue (south), maintaining the TWLTL; including any signal upgrades.

The timeline for this project cannot yet be determined. City officials are aware of the need and citizens of the Indian Trail neighborhood support the project. However, the City currently lacks the funding needed to construct this $3,000,000 project. As such, this project is not yet programmed in the *Six Year Capital Improvement Program.* Given these conditions, the improvement was NOT reflected in future year 2021 analyses.

Pavement Preservation. There are a number of pavement preservation projects programmed by the City throughout the Indian Trail neighborhood. These will improve street conditions but

do not impact circulation or capacity. They are mentioned only as they are listed in the *Capital Improvement Program.*

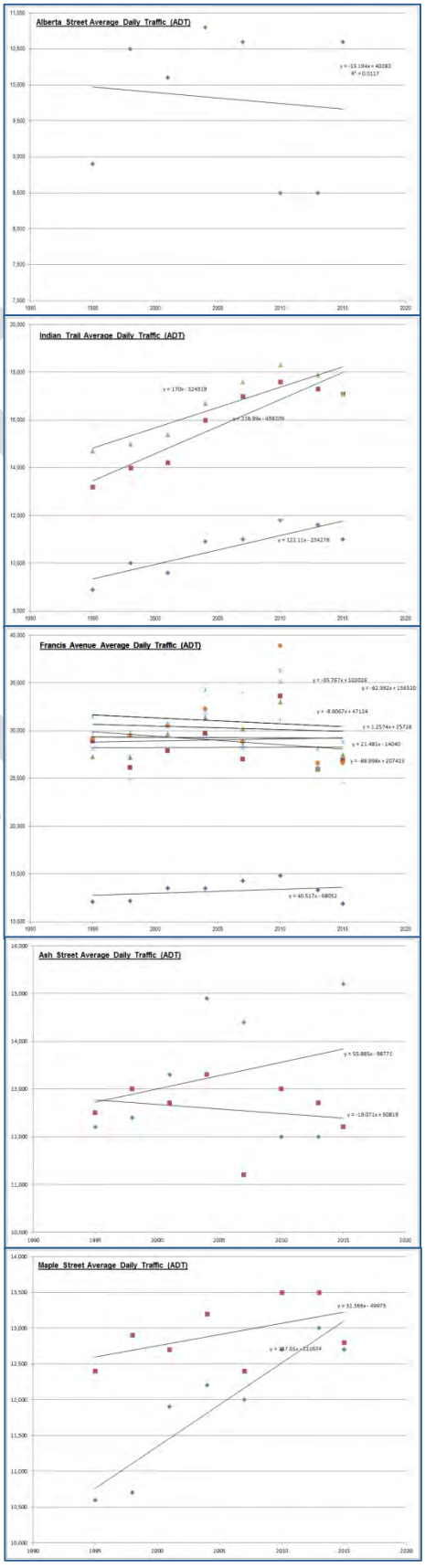
There are no other agency or development improvements planned or programmed within the five-year analysis timeframe of this project. Other than the trips diverted as a result of the Barnes Road extension, no other improvements or changes to forecast conditions were considered.

3.2 TRAFFIC FORECASTS

Year 2021 traffic forecasts were comprised of baseline growth, the trips generated by other vested, but yet to be constructed developments projects, and the trips generated by the proposed development. Baseline traffic growth refers to the increase of through traffic not typically associated with development of projects within the project study area. Baseline growth is projected with the use of traffic growth rates. To establish the growth rate for this study, historical traffic counts were reviewed for study arterials.

Traffic growth was compared based on historical year 1995 to 2015 ADT counts, as available for Indian Trail Road, Francis Avenue, Alberta Street, Ash Street, and Maple Street (multiple locations). Counts indicate minimal and even negative growth on the majority of City roadways; however, positive growth was noted specifically for Indian Trail Road, ranging between 1.0 and 1.5 percent annually. The statistical average growth rate of all count points reviewed was 0.3 percent annually.

Based on this analysis, a 0.5% annual growth rate was applied to counts to forecast baseline 2021 traffic forecasts. This rate is conservative (high) for the majority of the study area. The baseline growth rate was seemingly moderate for Indian Trail Road. However, it must be understood the 1.0 to 1.5 percent annual growth rate almost directly reflects development growth within the Indian Trail neighborhood throughout the last 20 years. The impact of development growth is discussed in the following sections. Once the trips generated by these developments and Windhaven are reflected in forecasts, the annual growth rate for the roadway well exceeds historical growth for Indian Trail Road. Thus, all traffic forecasts are ultimately conservative (high-end) for this TIA.



3.2.1 Pipeline Projects

Per coordination with agencies, the trips generated by eleven vested land use projects, known as pipeline projects, were addressed within this study. These projects have been approved by the City of Spokane, but are in the process of being developed. As such, the trips generated by these

projects are not yet recorded in counts and need to be addressed in forecasts as they have rights to future capacity. A summary of pipeline projects are as follows:

1. **Hunts Point.** 183 single family and 48 multifamily homes aligned on 52.56 acres south of Pacific Park Drive and west of Indian Trail Road. No homes have been developed (as of yet) on the site.
2. **Windhaven First Addition.** 289 single family homes aligned on 49.48 acres north of Barnes Road and west of Indian Trail Road. No homes have been developed (as of yet) on the site.
3. **Ponderosa Ridge 3rd Addition.** 12 single family homes yet to be developed out of 43 approved on 9.94 acres aligned north of Barnes Road and west of Sundance Drive.
4. **Ponderosa Ridge 4th Addition.** 25 single family homes aligned on 18.95 acres west and east of Rosebury Lane. No homes have been developed (as of yet) on the site.
5. **Diamond Rock.** 96 apartment units developed on 4.32 acres aligned within the southeast quadrant of the Barnes Road/Indian Trail Road intersection.
6. **Replat McCarroll's Addition Phase 2.** 13 single family homes aligned on 2.69 acres north of Barnes Road and east of Woodridge Drive. No homes have been developed.
7. **McCarroll's East 3rd Addition.** 10 single family homes yet to be developed out of 44 approved on 19.18 acres aligned north of Barnes Road and east of Seminole Street.
8. **McCarroll's East 4th Addition.** 15 single family homes aligned on 8.85 acres south of Barnes Road and east of James Street. No homes have been developed (as of yet).
9. **McCarroll's East.** 133 single family and 28 multifamily homes aligned on 118.2 acres south of Barnes Road.
10. **Woodridge View 1st Addition.** 7 single family homes yet to be developed out of 40 approved on 24.72 acres aligned north of Seminole Drive and east of Fleetwood Court.
11. **Estates at Rocky Ridge.** 15 single family homes yet to be developed out of 42 approved on 13.17 acres aligned south of Lincoln Road and east of Hiawatha Drive.
12. **Westwinds PUD.** 19 single family homes yet to be developed out of 36 approved on 19.96 acres aligned south of Strong Road and west of Upper Mayes Lane.

The assignment of pipeline project trips was developed based upon trip generation and trip distribution information provided by City traffic engineers. In summary, City staff performed trip generation calculations based upon information provided within the ITE *Trip Generation Manual*, as based upon a comparison of rate and equation data that correlate site trips to dwelling units for single and multi-family land uses. And then, using the regional travel demand model, the City identified the likely distribution patterns of trips throughout the project study area.

The City congregated trip generation and distribution information into three transportation analysis zones (TAZ's). A TAZ a transportation analysis and modeling term which refers to a geographical area that experiences similarities in travel characteristics (i.e. approaching and departing access/traffic trends); as bordered by arterials, agency limits, or topographical features (cliffs, rivers/streams, etc.). They simply allow for the organization of transportation data, both for analytical reasons and for the presentation of information. With this understanding, a summary of trip generation for TAZ 29, 30, and 31 are shown in Table 9 for the AM and PM peak hours. Trip generation is shown per development within each TAZ.

Table 9. Vested Residential Land Use & Trip Comparisons by TAZ

TAZ and Development	Dwelling Units/Homes		AM Peak Hour			PM Peak Hour		
	Single	Multi	In	Out	Total	In	Out	Total
TAZ 29								
- Hunts Point	183	48	48	119	167	142	72	214
- Windhaven First	286	0	65	145	210	179	92	271
- Ponderosa Ridge 3rd	12	0	6	13	19	10	5	15
- Ponderosa Ridge 4th	25	0	8	19	27	20	10	30
Subtotal TAZ 29	*506*	*48*	*127*	*296*	*423*	*351*	*179*	*530*
TAZ 30								
- Diamond Rock	0	96	10	41	51	46	25	71
- Replat McCarroll	13	0	6	13	19	11	6	17
- McCaroll's 3rd	10	0	5	12	17	9	5	14
- McCaroll's 4th	15	0	6	14	20	13	7	20
- McCarroll's East	7	28	8	26	34	21	10	31
- Woodridge View	7	0	5	10	15	6	3	9
Subtotal TAZ 30	*52*	*124*	*40*	*116*	*156*	*106*	*56*	*162*
TAZ 31								
- Estates at Rocky	15	0	6	14	20	13	7	20
- Westwinds PUD	19	0	7	16	23	16	8	24
Subtotal TAZ 31	*34*	*0*	*13*	*30*	*43*	*29*	*15*	*44*
Total Pipeline Trips	592	172	180	442	622	486	250	736

As shown, the 592 single family and 172 multi-family homes approved within the Indian Trail neighborhood generate 622 trips during the AM peak hour and 736 trips during the PM peak hour. Overall, about 71 percent of these trips are generated by TAZ 29, 23 percent by TAZ 30, and 6 percent by TAZ 31, as averaged between the AM and PM peak hours.

As indicated, City staff also provided TAZ distribution information as based upon information gained from the regional travel demand model. Project trips were assigned to the study area based upon these distributions. Trip distributions for each TAZ are summarized below.

TAZ 29 - Located west of Indian Trail Road, all trips from this TAZ are anticipated to access or travel through Indian Trail Road. Overall 4 percent of trips from TAZ 29 are anticipated to access Indian Trail Road via Shawnee Avenue, 49 percent via Barnes Avenue, 25 percent via Strong Road, and 22 percent via Pacific Park Drive. The distribution of trips outside of the study area is as follows (100 percent distributions to/from):

- **Barnes Road.** 21 percent of trips are anticipated to/from the east of Indian Trail Road; via the new connection with Strong Road.
- **Indian Trail Road.** 9 percent of project trips are anticipated to/from the north of Barnes Road.
- **Francis Avenue.** 6 percent of project trips are anticipated to/from the west of Indian Trail Road and 25 percent to/from the east of the Maple/Ash Couplet.
- **A Street.** 8 percent of project trips are anticipated to/from the south of Francis Avenue.
- **Alberta Street.** 12 percent of project trips are anticipated to/from the south and 3 percent to/from the north of Francis Avenue.

- **Belt Street.** 1 percent of project trips are anticipated to/from the south of Francis Avenue.
- **Maple/Ash Couplet.** 9 percent of project trips are anticipated to/from the south and 6 percent to/from the north of Francis Avenue.

TAZ 30 - Located east of Indian Trail Road, the majority of trips from this TAZ will access or cross Indian Trail Road. Overall 57 percent of trips from TAZ 30 are anticipated to access Indian Trail Road via Barnes Avenue, 1 percent via Lowell Avenue, and 10 percent via Strong Road. Of these trips, the distribution outside of the study area is as follows (68 percent distributions to/from):

- **Barnes Road.** 6 percent of trips are anticipated to/from the west of Indian Trail Road.
- **Strong Road.** 2 percent of trips are anticipated to/from the west of Indian Trail Road.
- **Indian Trail Road.** 7 percent of project trips are anticipated to/from the north of Barnes Road.
- **Francis Avenue.** 5 percent of project trips are anticipated to/from the west of Indian Trail Road and 13 percent to/from the east of the Maple/Ash Couplet.
- **A Street.** 4 percent of project trips are anticipated to/from the south of Francis Avenue.
- **Alberta Street.** 6 percent of project trips are anticipated to/from the south of Francis Avenue.
- **Maple/Ash Couplet.** 7 percent of project trips are anticipated to/from the south and 18 percent to/from the north of Francis Avenue.

TAZ 31 - Located on the western edge of the Indian Trail neighborhood, a minority of these trips from this TAZ will access or cross Indian Trail Road. Overall 14 percent of trips from TAZ 31 are anticipated to access Indian Trail Road via Barnes Avenue, 2 percent via Lowell Avenue, and 2 percent via Strong Road. Of these trips, the distribution outside of the study area is as follows (18 percent distributions to/from):

- **Barnes Road.** 2 percent of trips are anticipated to/from the west of Indian Trail Road.
- **Strong Road.** 2 percent of trips are anticipated to/from the west of Indian Trail Road.
- **Indian Trail Road.** 4 percent of project trips are anticipated to/from the north of Barnes Road.
- **Francis Avenue.** 5 percent of project trips are anticipated to/from the west of Indian Trail Road and 1 percent to/from the east of the Maple/Ash Couplet.
- **A Street.** 1 percent of project trips are anticipated to/from the south of Francis Avenue.
- **Alberta Street.** 1 percent of project trips are anticipated to/from the south of Francis Avenue.
- **Maple/Ash Couplet.** 1 percent of project trips are anticipated to/from the south and 1 percent to/from the north of Francis Avenue.

Note that a number of trips will travel through the study area as a result of travel via the Five Mile Road and Cedar Road intersections with the Maple/Ash Couplet (or Country Homes Boulevard). About 47 percent of TAZ 31 trips will impact the study area, via Maple/Ash north. Of these trips, about 20 percent anticipated to/from the east and 2 percent to/from the west (of Maple/Ash) on Francis Avenue, and 25 percent are anticipated to/from the south (of Francis Avenue) via the Maple/Ash Couplet.

Figure 5 and Figure 6 provide a summary of pipeline project trip assignments for the AM and PM peak hours at study intersections. Also highlighted are pipeline project locations and rough TAZ boundaries. Pipeline trips were combined with baseline forecasts to develop the future without project traffic volumes, as shown on Figure 7 and Figure 8 for the peak hours. TAZ trips assignments are provided in Section D of the Technical Appendices.

Windhaven First Addition. The trips generated by Windhaven Fist Addition were purposefully included in future without-project traffic forecasts. This is because the trips associated with these 286 homes are already programmed/approved for the Indian Trail neighborhood. Thus, these would be considered pipeline project trips, just like any other approved, but yet to be constructed, development project.

3.2.2 Trip Generation

Trip generation was predicted using the methods outlined in the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (9th Edition, 2012). The Trip Generation Manual is a nationally recognized and locally accepted method for forecasting trip generation for a range of commercial, retail, and residential land uses. The forecasting methods were developed based on the survey of other existing land use developments located throughout the United States.

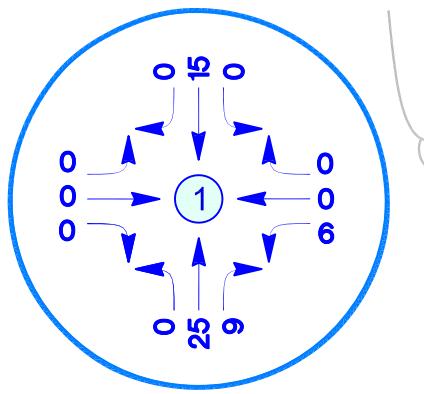
Trip generation was determined using ITE Code 220 for Apartment land uses. The ITE describes this land use as "rental dwelling units located within the same building with at least three other dwelling units." Trip generation was determined based on equations that estimate trips according to the number of dwelling units. Equations were used over rates because more than 10 surveys/studies were used to develop ITE equations with a resulting data regression fit of near or in excess of 0.75.

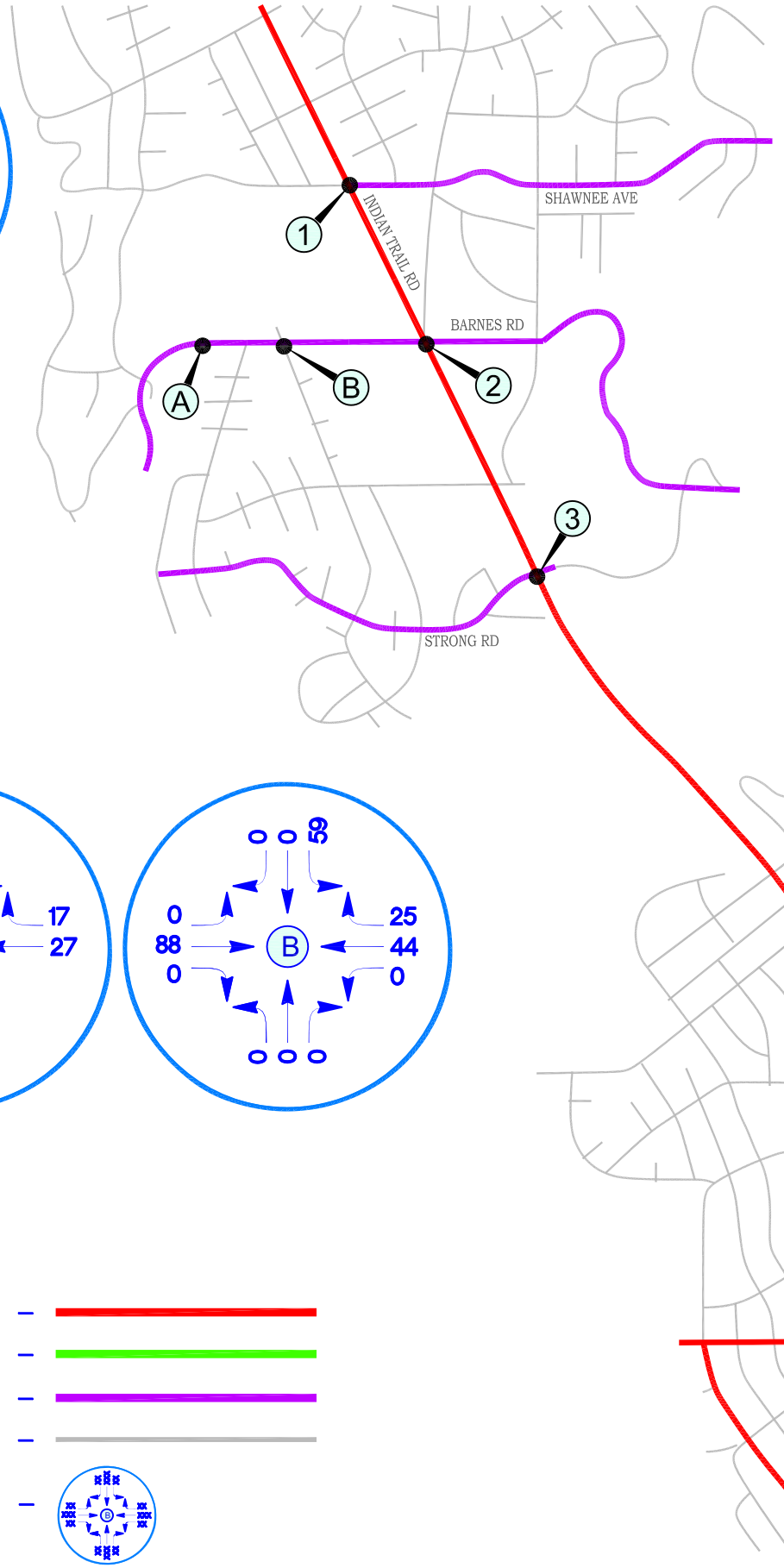
As indicated, the site has already been approved for development of 286 single family homes. According to Table 1, this represents the trips of approximately 460 apartment units. However, because trip generation is based upon linear regression equations, trip generation projections were developed for 750 apartment units. The trip generation associated with Windhaven First addition and 286 homes, as specified by City data, was then subtracted from these totals to determine the net gain in site-generated trips. A summary of trip forecasts are shown in Table 10 for the AM and PM peak hours.

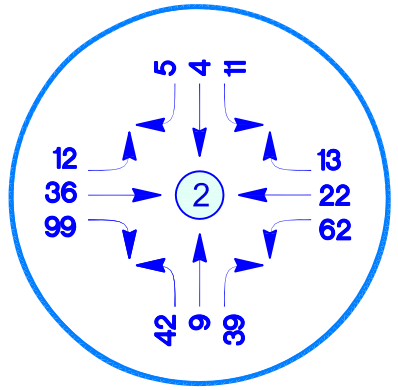
Table 10. Project Trip Generation Gains

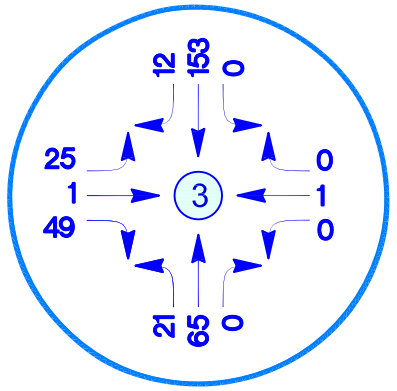
Land Use	Dwelling Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Apartments - ITE Code 220	750	74	297	371	280	150	430
Single Family Homes - ITE Code 210	286	65	145	210	179	92	271
Net Gain Site Trips	--	9	152	161	101	58	159

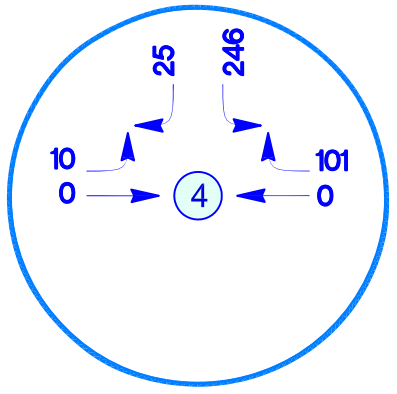
As the project proposal results in a net gain in trip generation of 161 trips during the AM peak hour and 159 trips during the PM peak hour. These trips represent the net gain in traffic over those vested and approved by the City of Spokane.

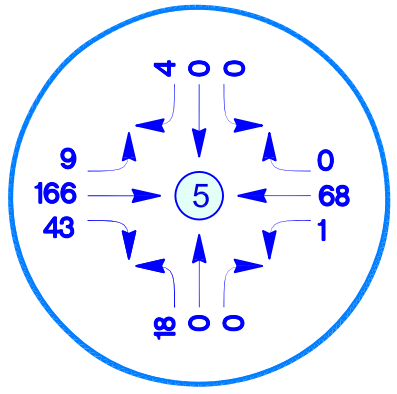


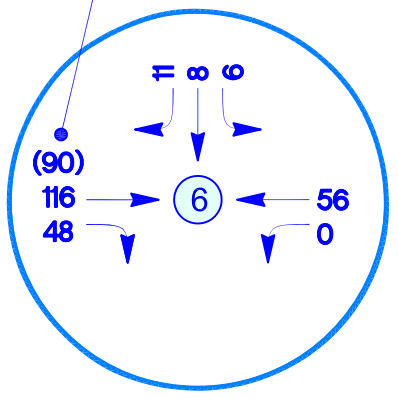


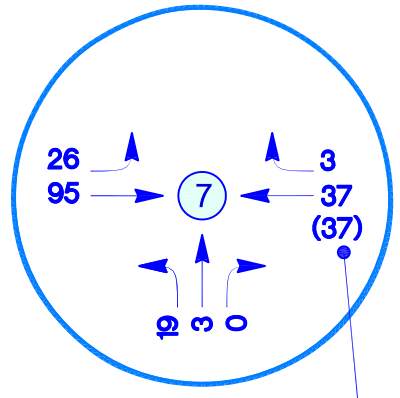


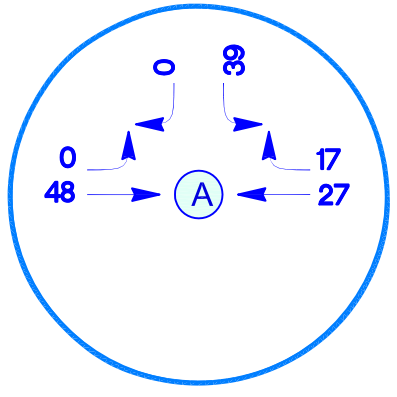












PRINCIPAL ARTERIAL –

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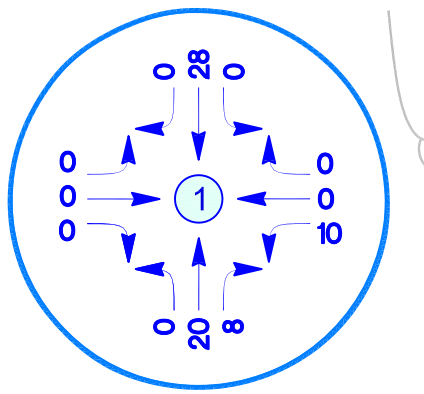
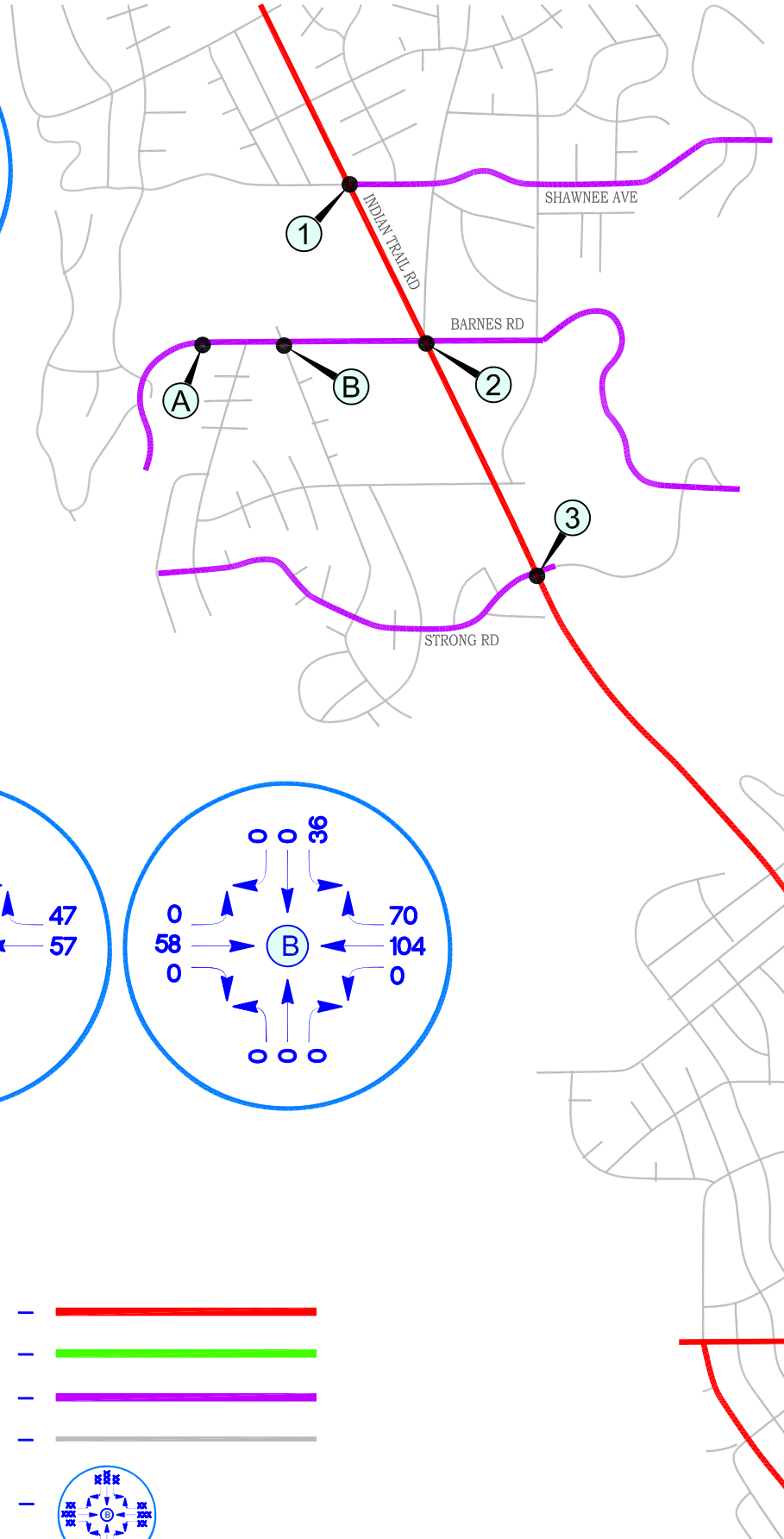
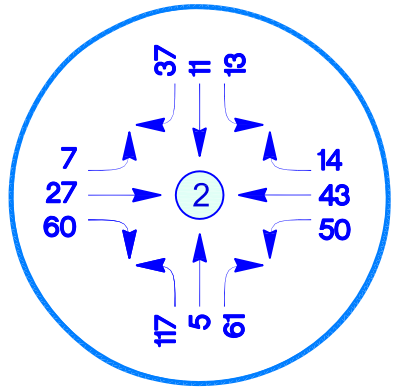
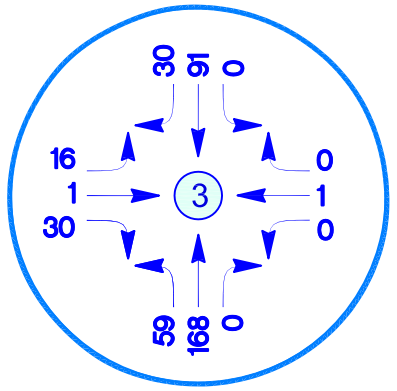
INTERSECTION TURNING MOVEMENTS –

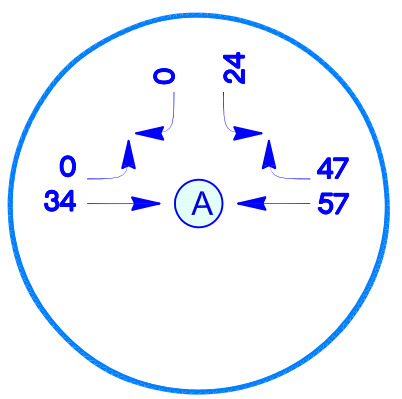
MORRISON MAIERLE, INC. An Employee-Owned Company Engineers Surveyors Scientists Planners 1 Engineering Place Helena MT 59602 Phone: (406) 442-3050 Fax: (406) 442-7862 C:\Users\bwhite\Documents\Projects\5594002 - Windhaven\CAD\Wind_TIA_5-3-16.dwg Plotted by bill white on May/6/2016	DRAWN BY: KB CHK'D. BY: KB APPR. BY: KB DATE: 05/2016	WINDHAVEN APARTMENTS TRAFFIC IMPACT ANALYSIS SPOKANE WA PIPELINE PROJECT TRIP ASSIGNMENTS - AM PEAK HOUR	PROJECT NO. 5447.001 FIGURE NUMBER FIG. 5

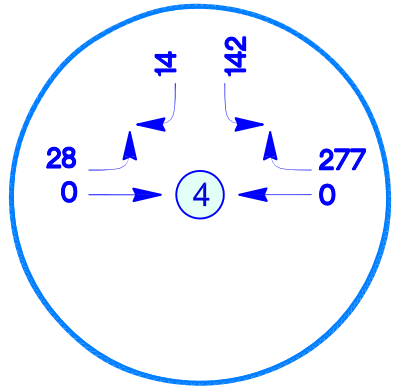


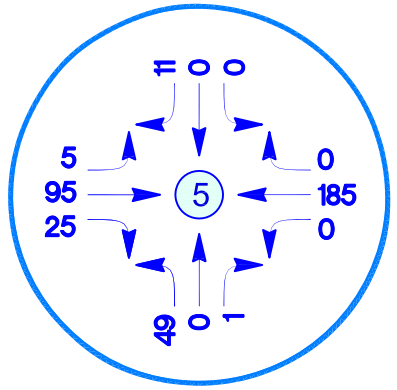


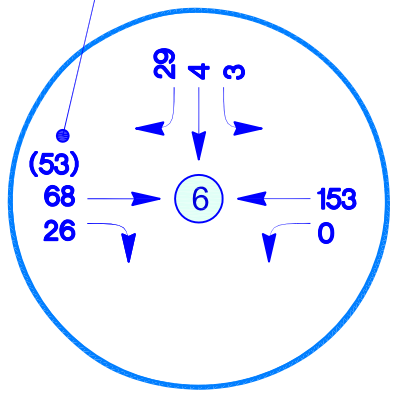


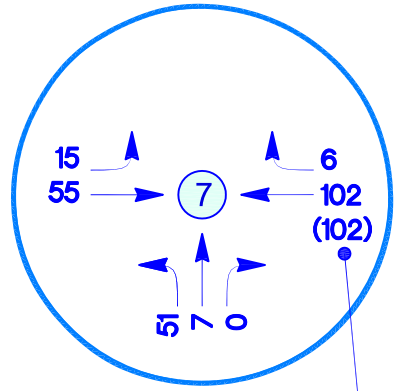


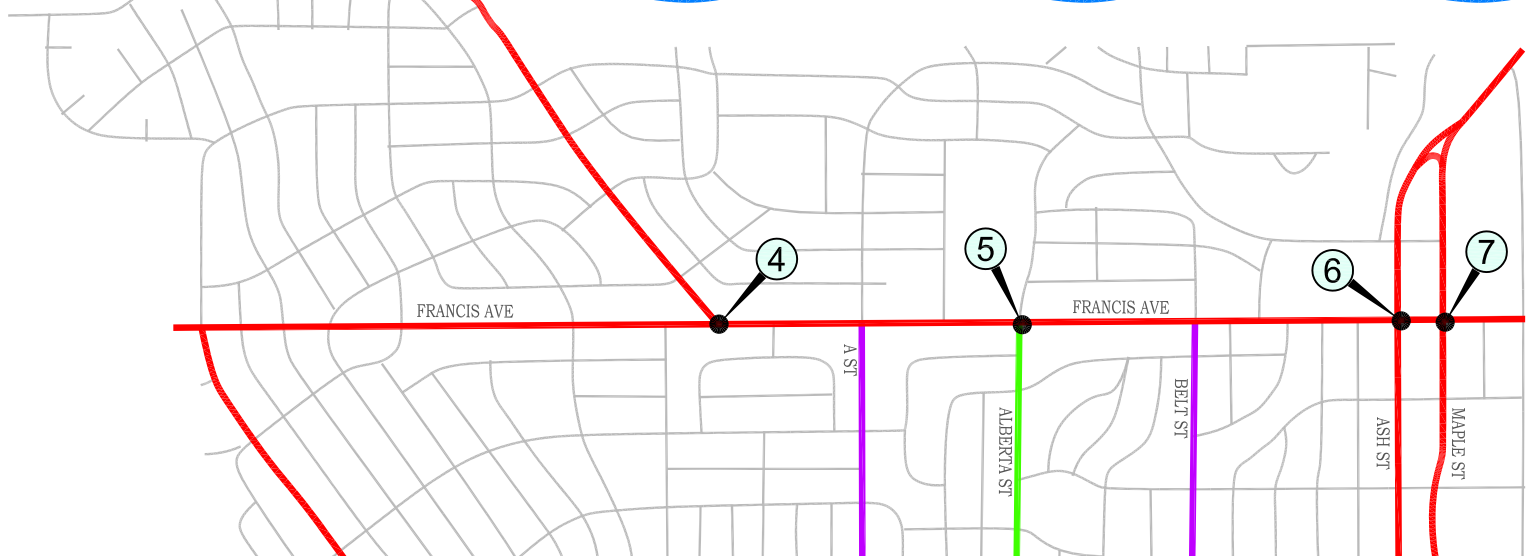












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1 Engineering Place
Helena MT 59602
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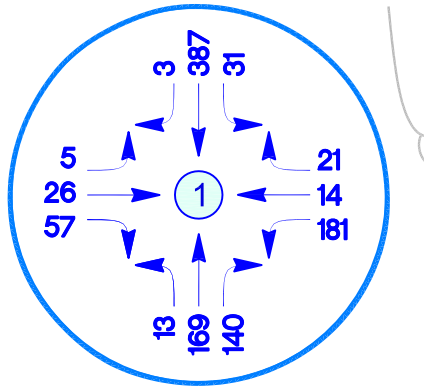
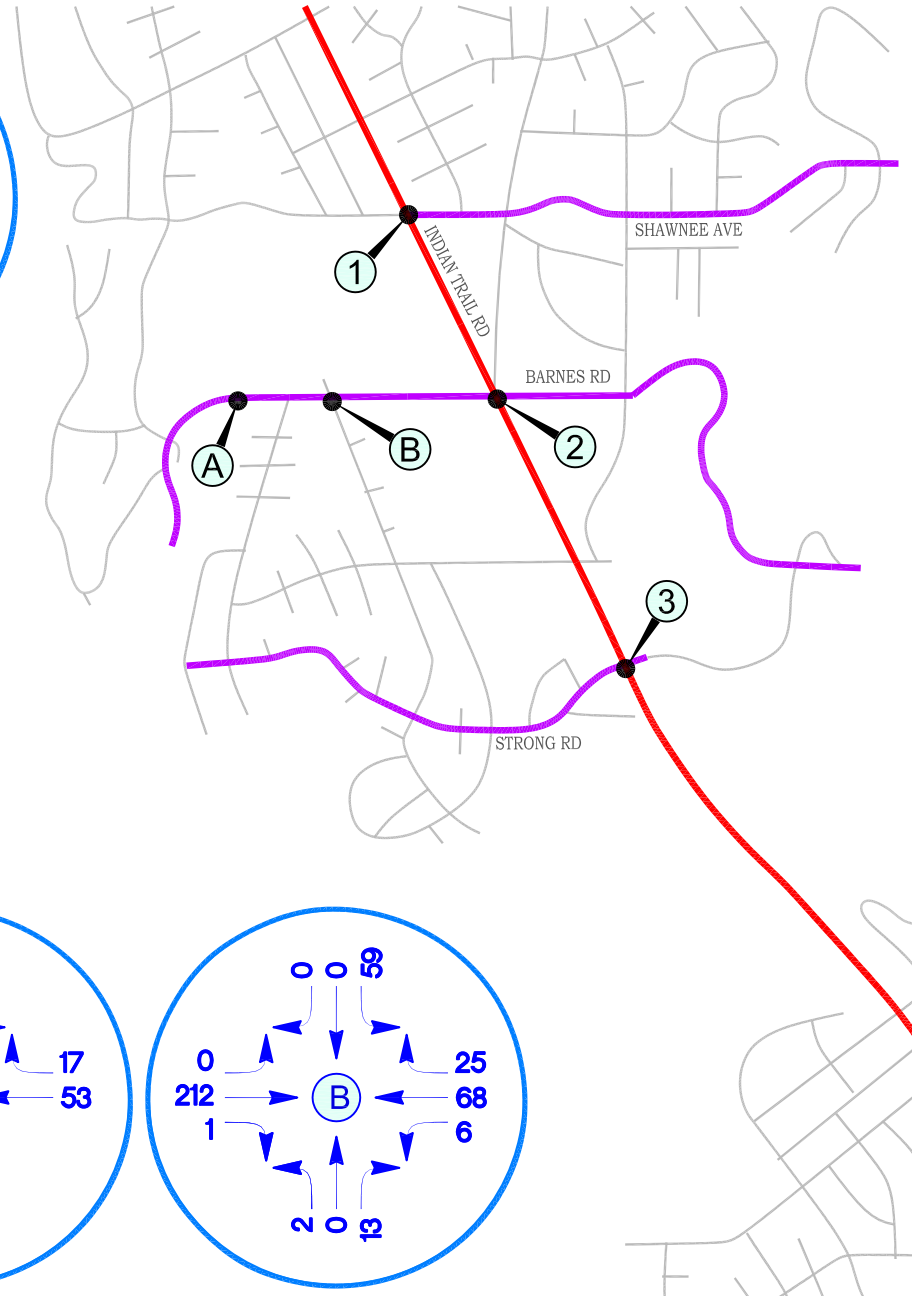
WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

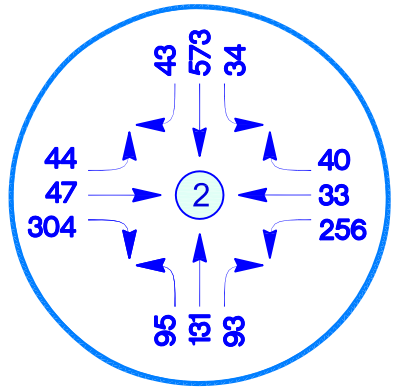
PIPELINE PROJECT TRIP ASSIGNMENTS - PM PEAK HOUR

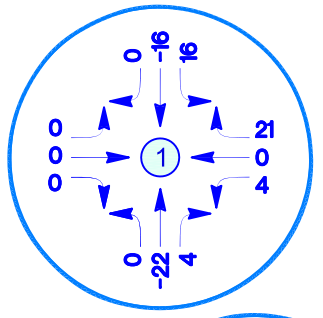
PROJECT NO. 5447.001

FIGURE NUMBER FIG. 6

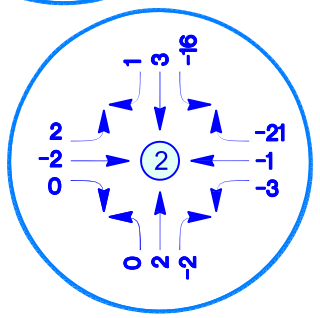








BARNES ROAD EXTENTION PROJECT
– BARNES RD/INDIAN TRAIL RD
INTERSECTION VOLUME ADJUSTMENTS



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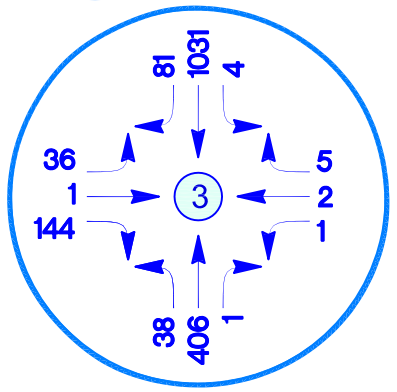
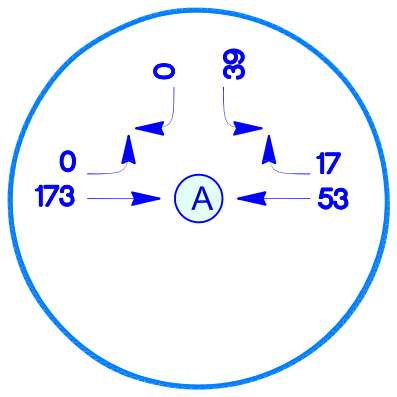
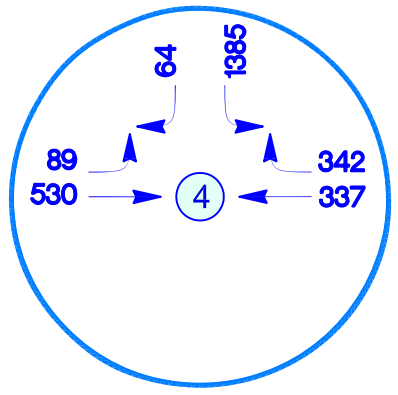
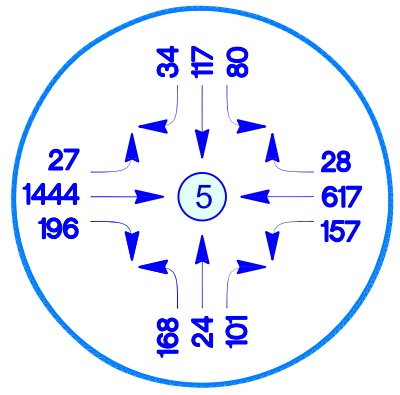
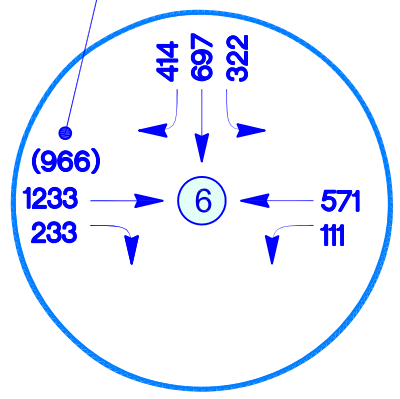
– STRONG RD/INDIAN TRAIL RD
INTERSECTION VOLUME ADJUSTMENTS











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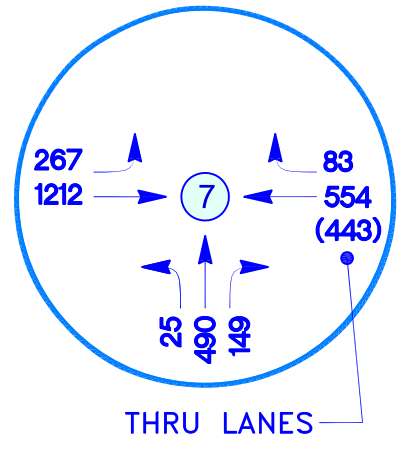

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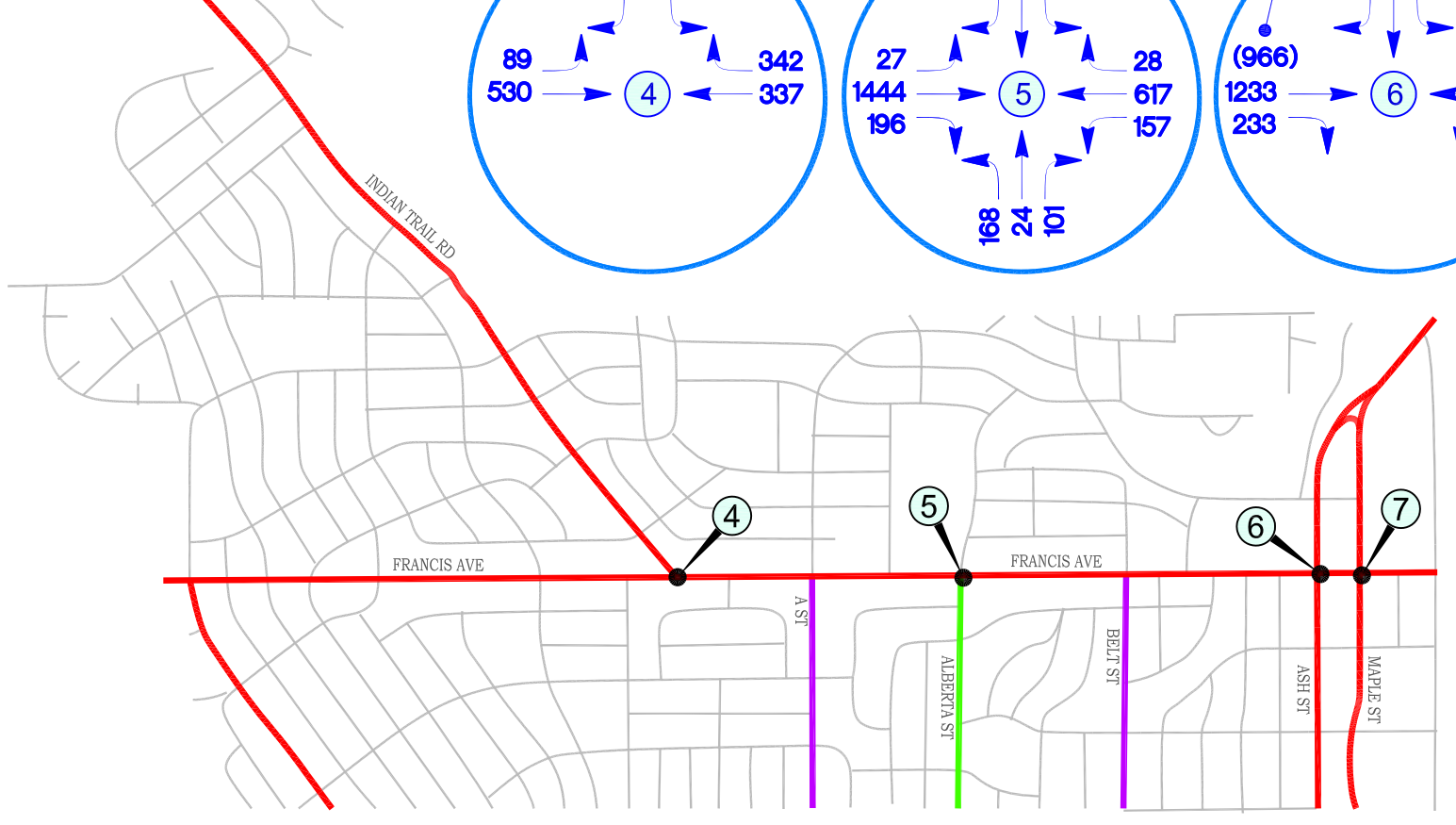

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Planners
1 Engineering Place
Helena MT 59602
Phone: (406) 442-3050
Fax: (406) 442-7862

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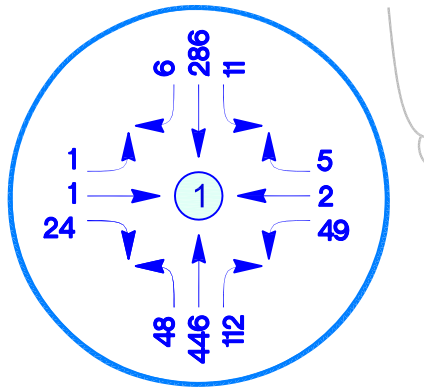
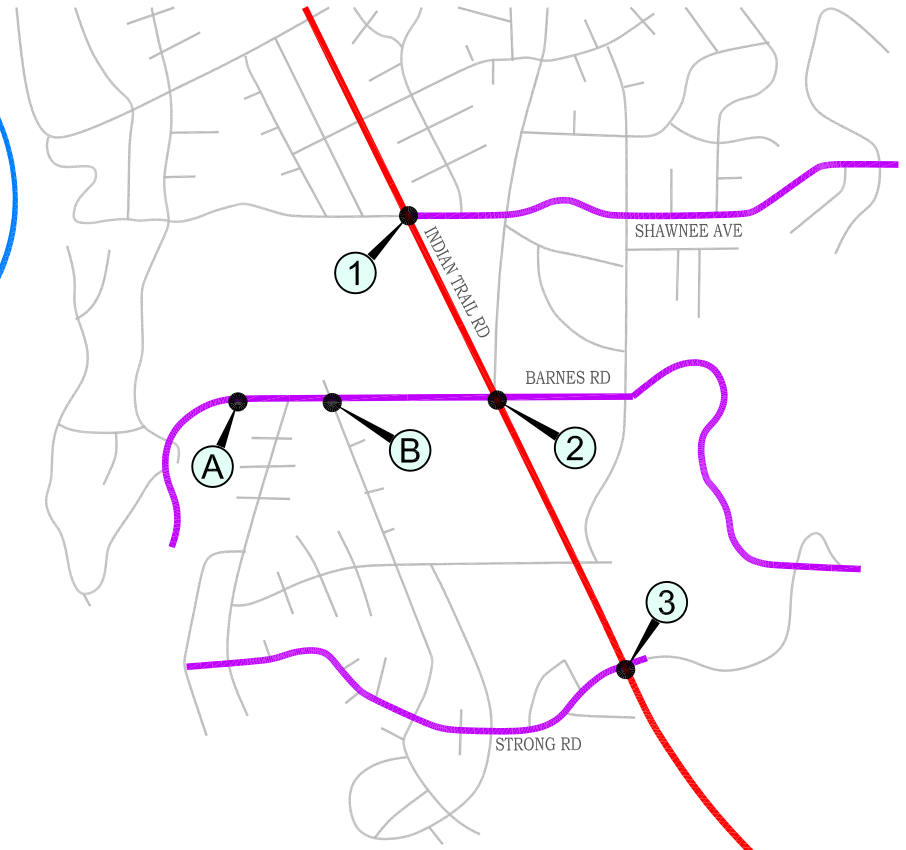
WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

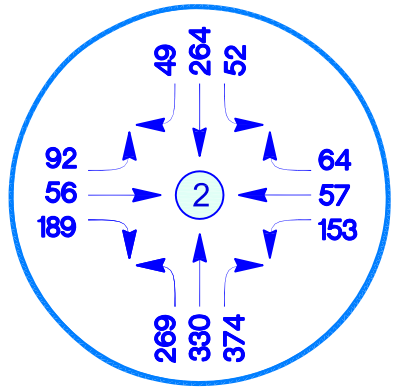
FUTURE WITHOUT-PROJECT TRAFFIC VOLUMES - AM PEAK HOUR

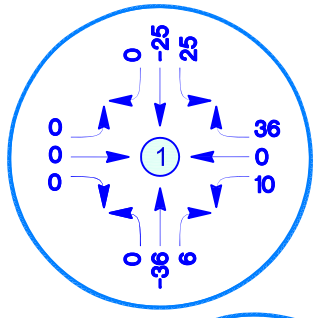
PROJECT NO.
5447.001

FIGURE NUMBER
FIG. 7

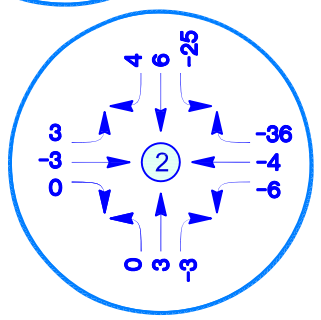








BARNES ROAD EXTENTION PROJECT
– BARNES RD/INDIAN TRAIL RD
INTERSECTION VOLUME ADJUSTMENTS



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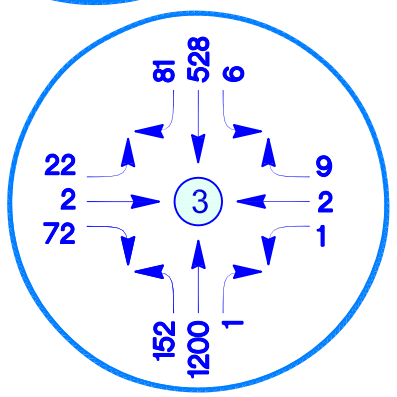
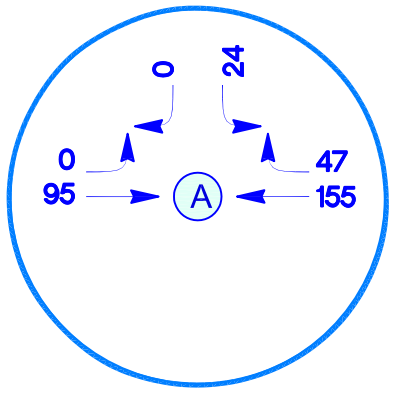
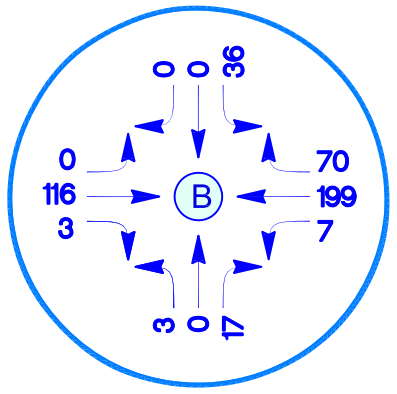
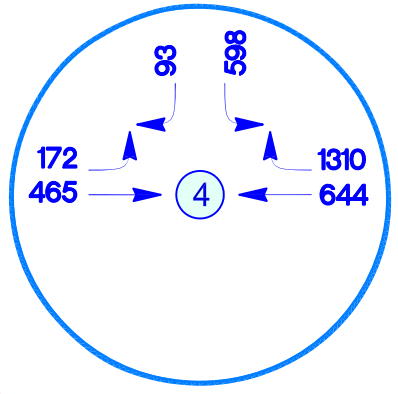
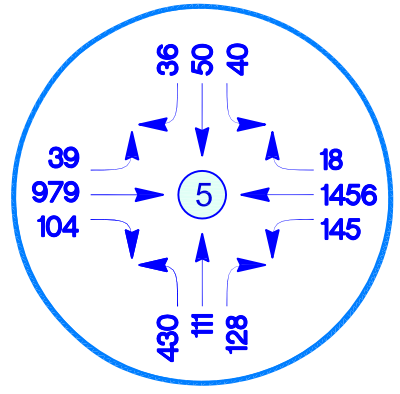
– STRONG RD/INDIAN TRAIL RD
INTERSECTION VOLUME ADJUSTMENTS











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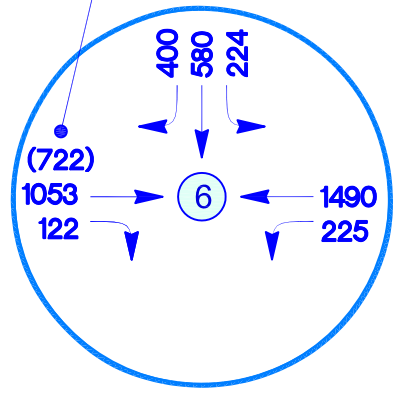

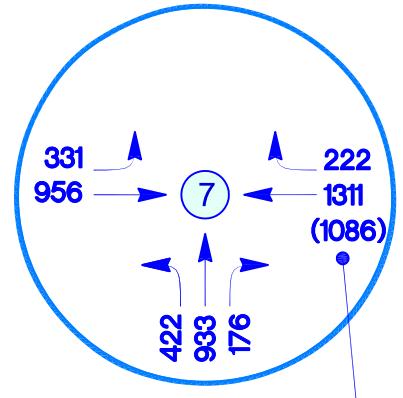

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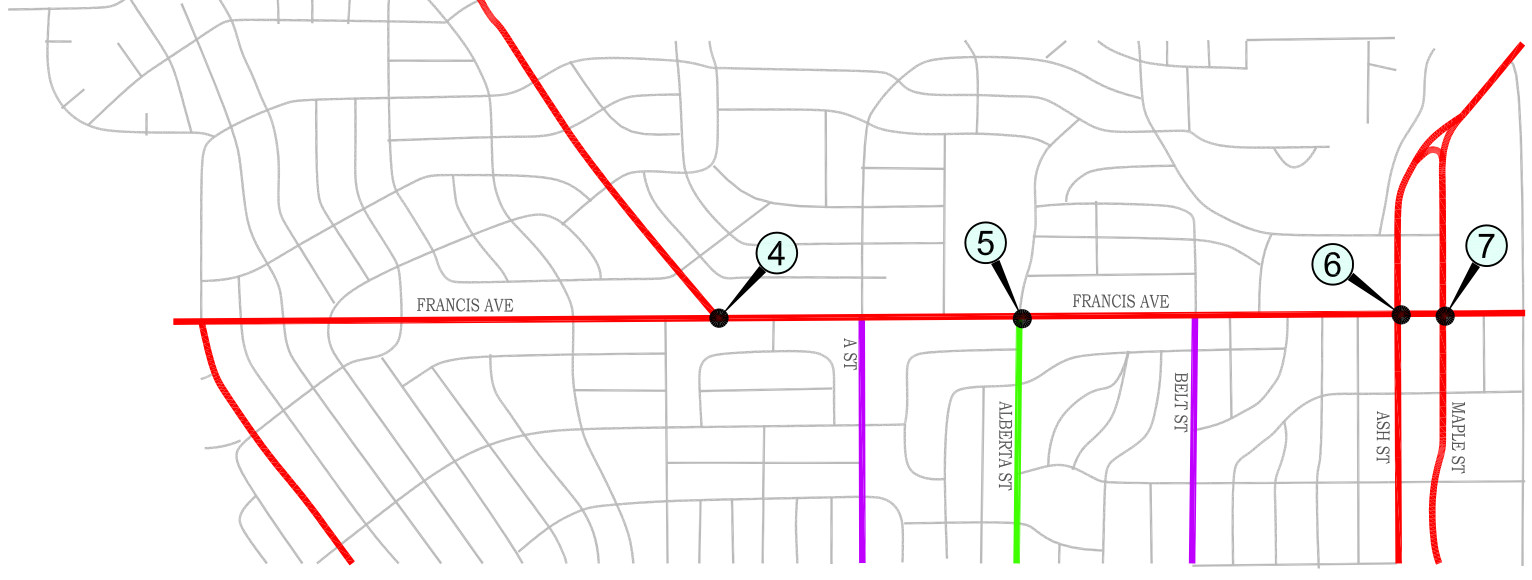

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Helena MT 59602
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WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

FUTURE WITHOUT-PROJECT TRAFFIC VOLUMES - PM PEAK HOUR

PROJECT NO. 5447.001

FIGURE NUMBER FIG. 8

3.2.3 Trip Distribution

As Windhaven is located with City TAZ 29, the assignment of site trip gains was based on the distribution patterns established for this zone. The only difference is all project trips would use the Barnes Road intersection to access Indian Trail Road. Approximately 40 percent of project trips would access Windhaven via Barnes Road and 60 percent via Pamela Lane.

A summary of overall site distributions is again as follows:

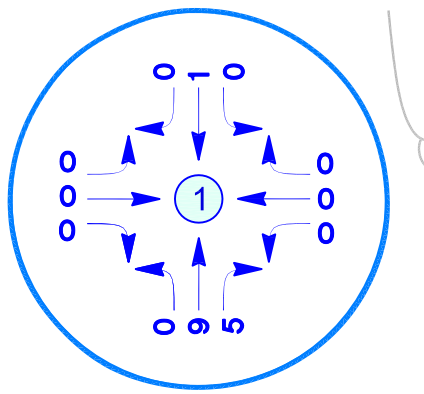
- **Barnes Road.** 21 percent of trips are anticipated to/from the east of Indian Trail Road, vial the new connection with Strong Road.
- **Indian Trail Road.** 9 percent of project trips are anticipated to/from the north of Barnes Road.
- **Francis Avenue.** 6 percent of project trips are anticipated to/from the west of Indian Trail Road and 25 percent to/from the east of the Maple/Ash Couplet.
- **A Street.** 8 percent of project trips are anticipated to/from the south of Francis Avenue.
- **Alberta Street.** 12 percent of project trips are anticipated to/from the south and 3 percent to/from the north of Francis Avenue.
- **Belt Street.** 1 percent of project trips are anticipated to/from the south of Francis Avenue.
- **Maple/Ash Couplet.** 9 percent of project trips are anticipated to/from the south and 6 percent to/from the north of Francis Avenue.

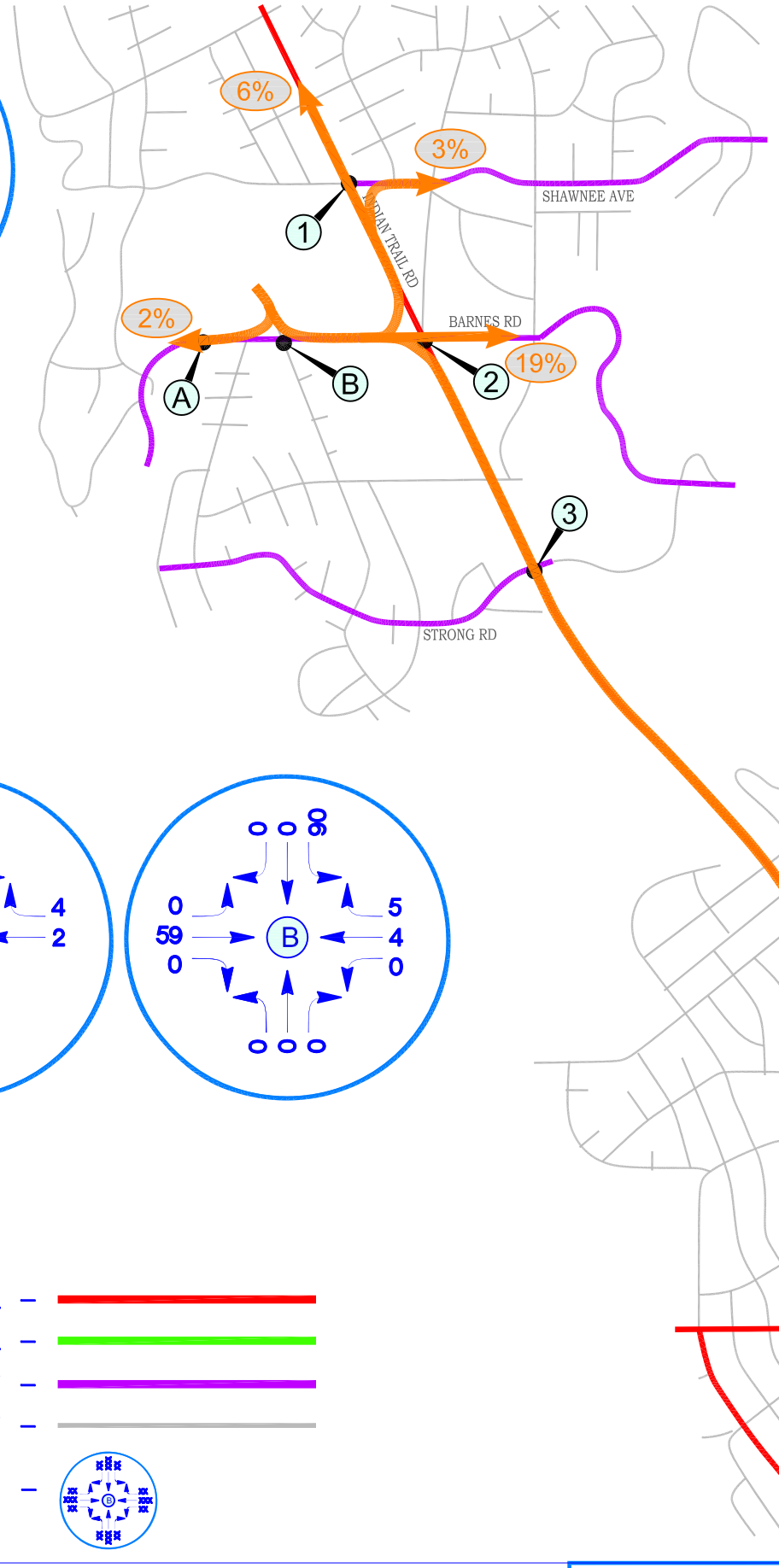
The resulting trip gain assignments are shown on Figure 9 for the AM peak hour and Figure 10 for the PM peak hour. Future with project traffic volumes and project trip assignments were then combined to generate the future year 2021 with project traffic forecasts, as shown on Figure 11 for the AM peak hour and Figure 12 for the PM peak hour.

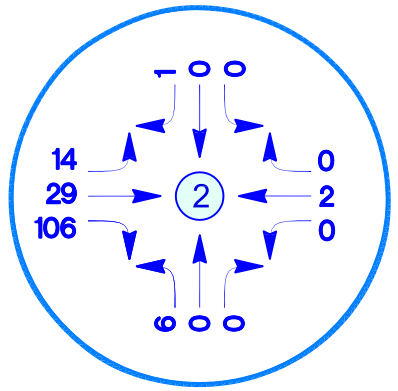
Indian Trail Traffic Gains. As indicated, traffic has historically increased on Indian Trail Road at a rate of 1.0 to 1.5 percent annually. The resulting future with project traffic volumes result in growth rates that range between 6 and 7 percent annually during the AM and PM peak hours (ranging between 30 and 40 percent overall). Thus, traffic forecasts are very conservative for year 2021; more likely reflecting traffic forecasts several years beyond this horizon as pipeline projects will require more than five years to be fully developed and occupied.

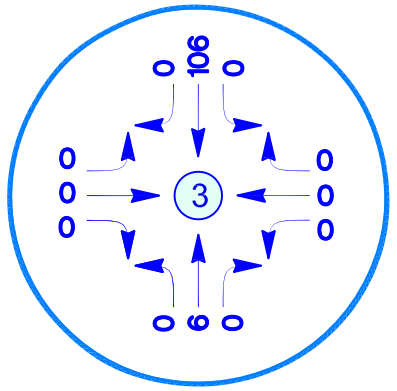
Barnes Road Extension. As indicated, the City has programmed the Barnes Road, Phoebe to Strong "Safety" project for construction in year 2017. The traffic diverted/forecast by this TIA as a result of this improvement for Barnes Road east of Indian Trail Road includes: the assignment of pipeline project trips, the assignment of Windhaven project trips, and some background traffic growth. The results are traffic projections that are 75 percent to 100 percent higher than counts during the PM and AM peak hours, respectively.

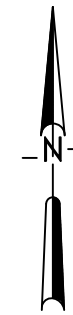
City officials reviewed the potential traffic gains associated with this project as a factor studied with a February 2015 Street Department Technical Memorandum prepared for the Five Mile and Strong Road intersection. Generally, the analysis concludes that a 5.5 percent annual traffic increase can be expected by year 2040 as a result of the Barnes Road extension project; which reflect the diversion of traffic to the new route plus the increase of traffic as a result of development growth. This growth was established based upon information secured from the

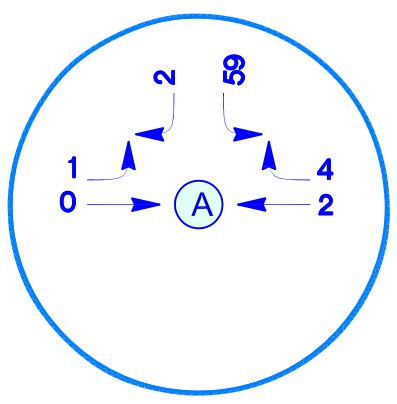


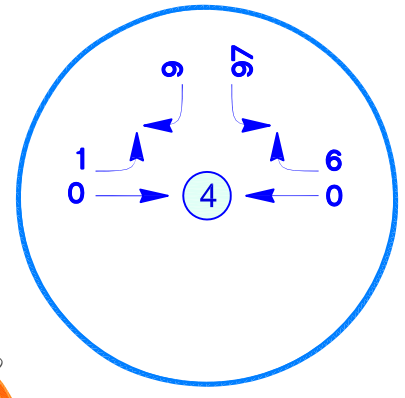


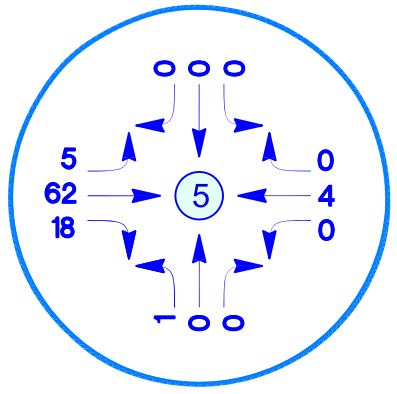


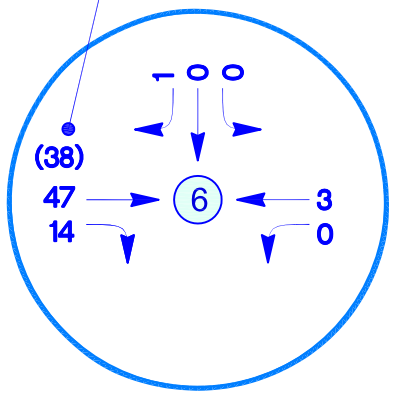


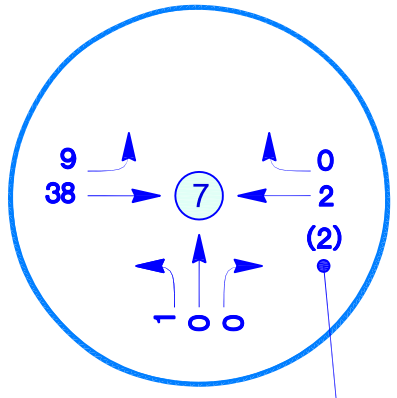


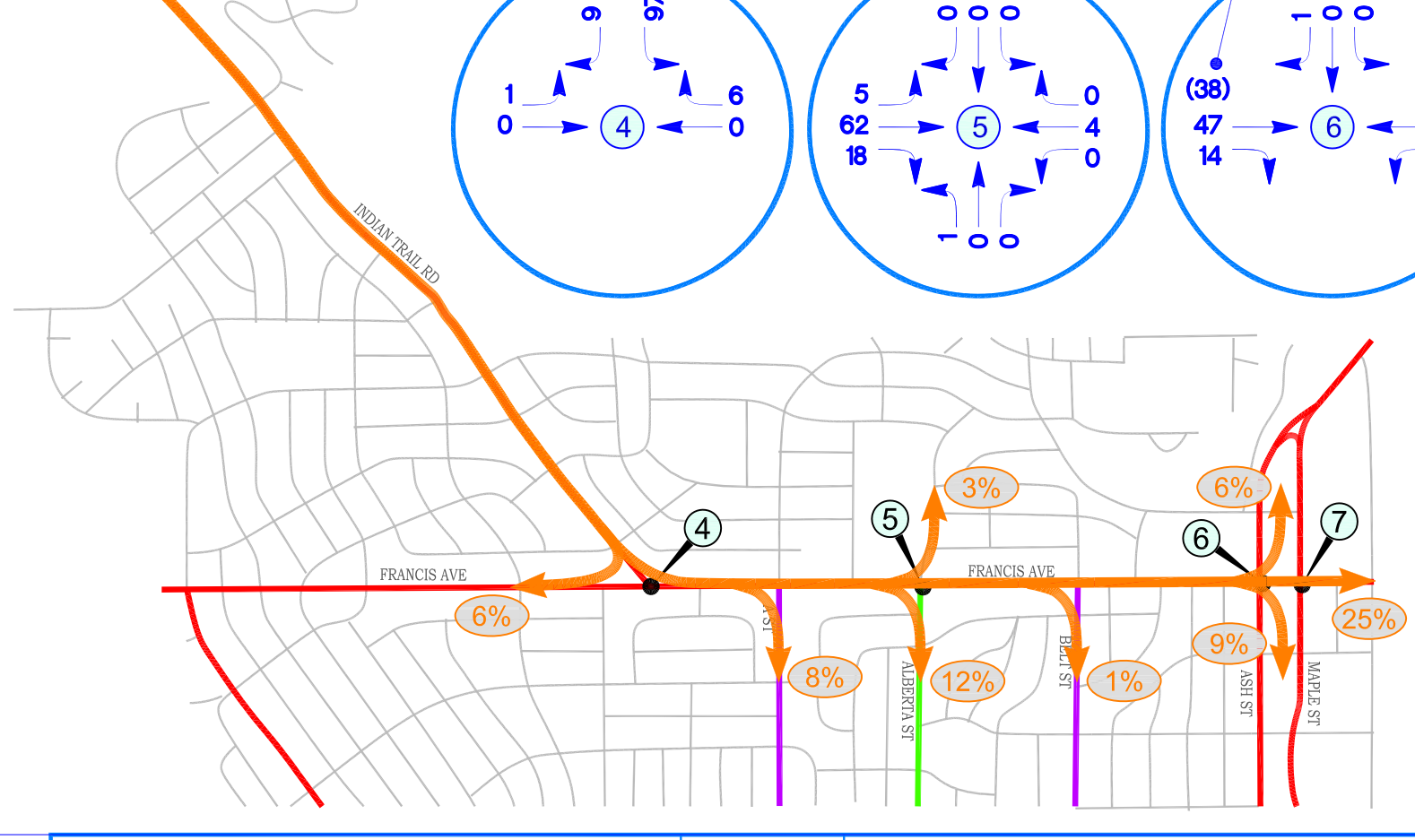












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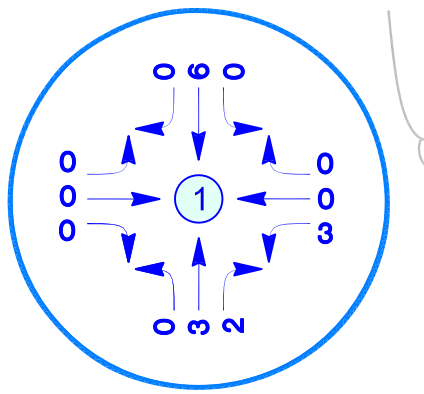
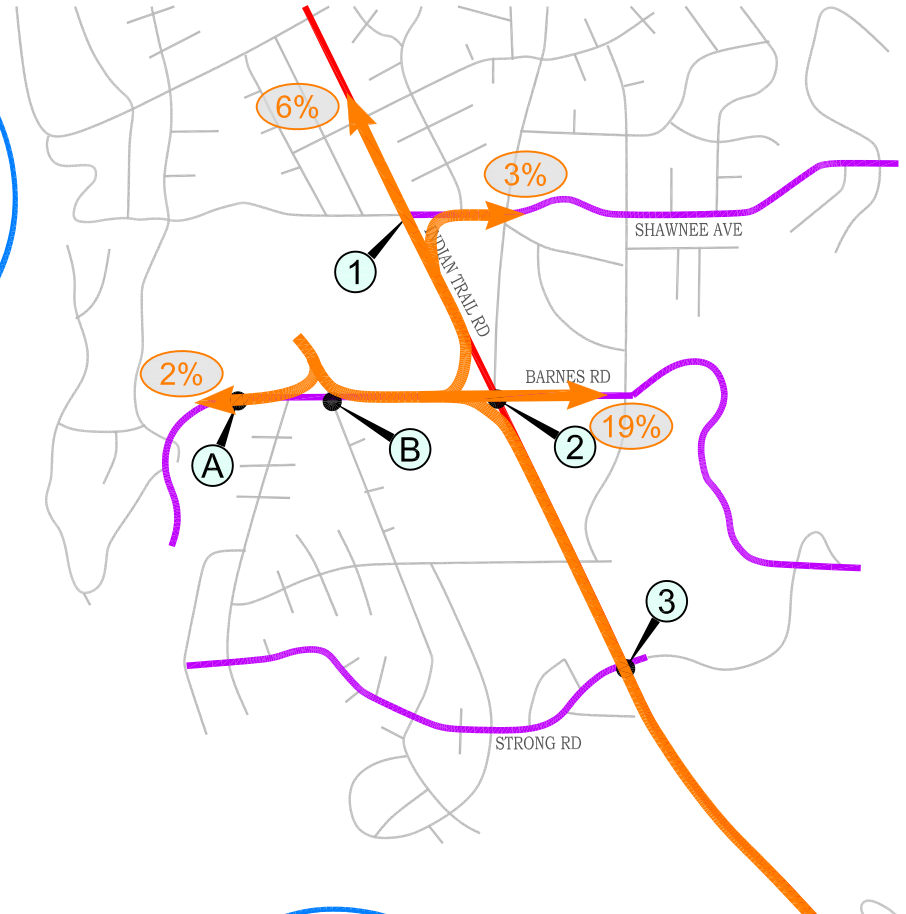
WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

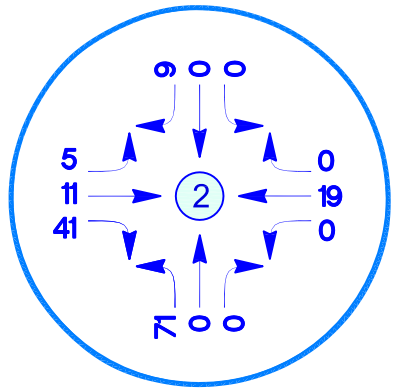
PROJECT TRIP ASSIGNMENTS - AM PEAK HOUR

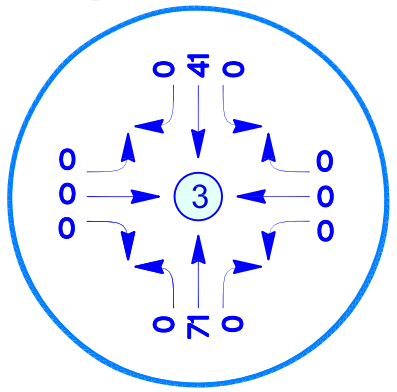
PROJECT NO. 5447.001

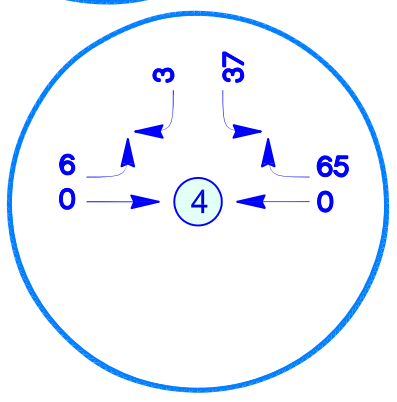
FIGURE NUMBER FIG. 9

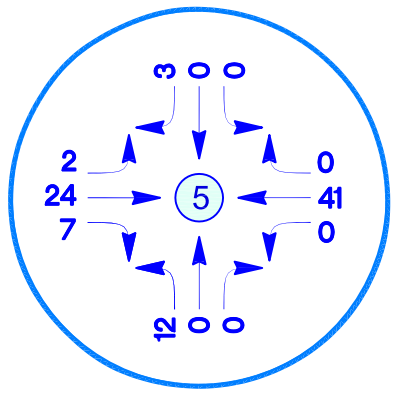


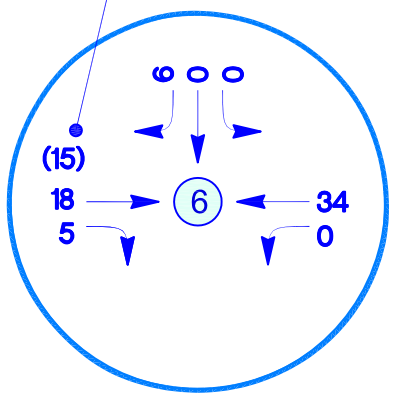


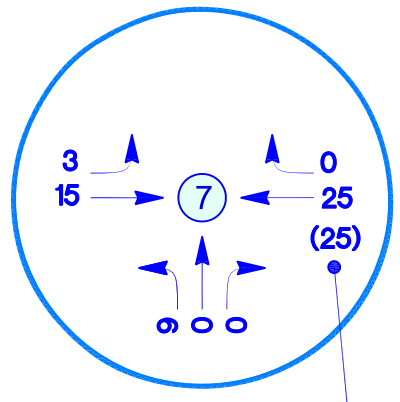


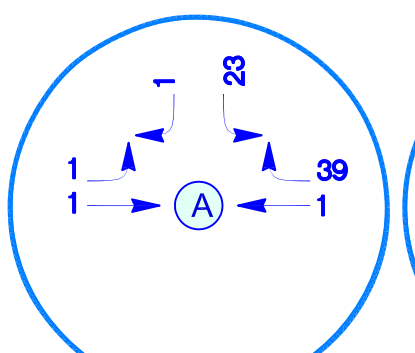


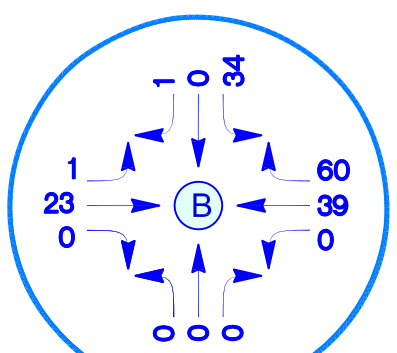


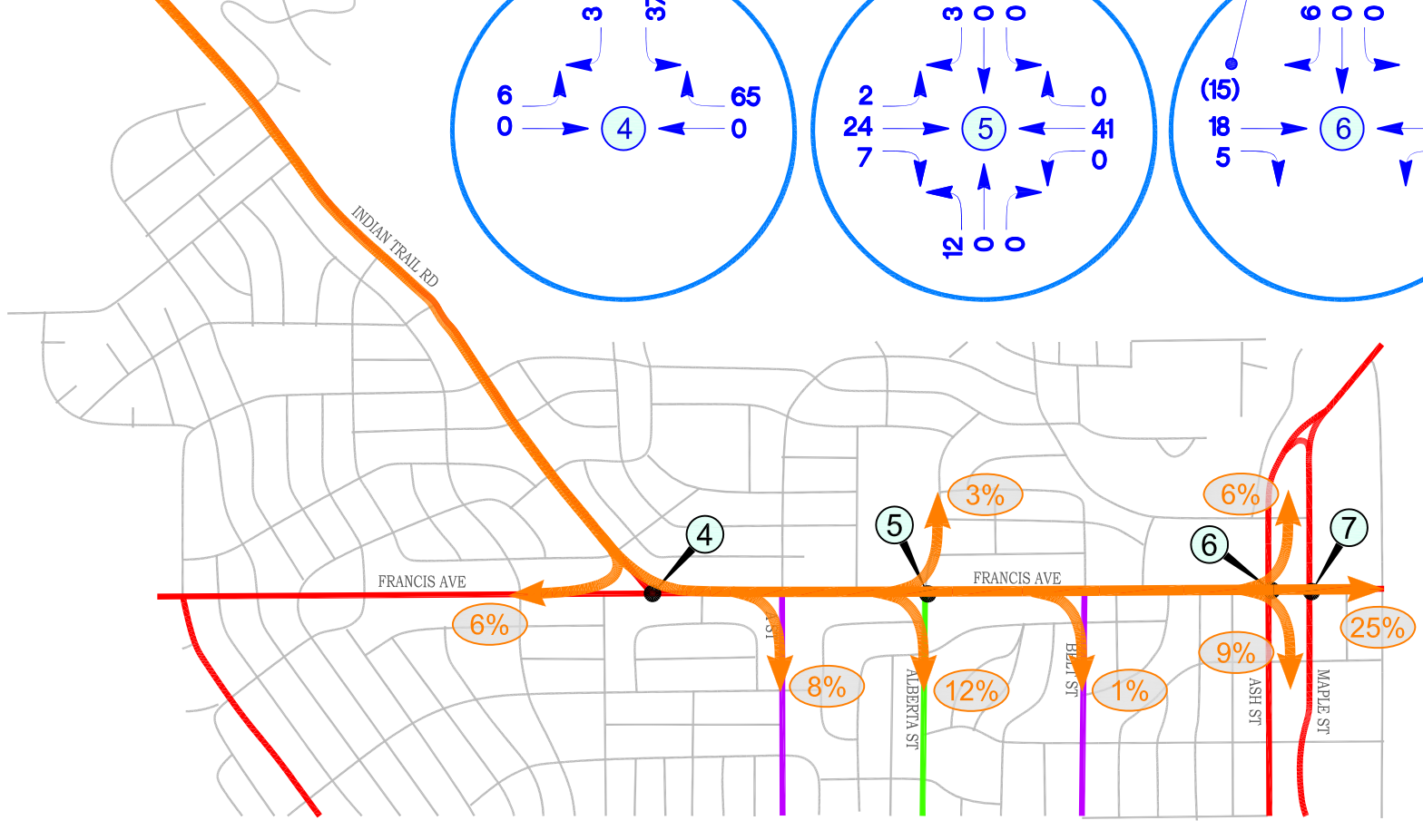












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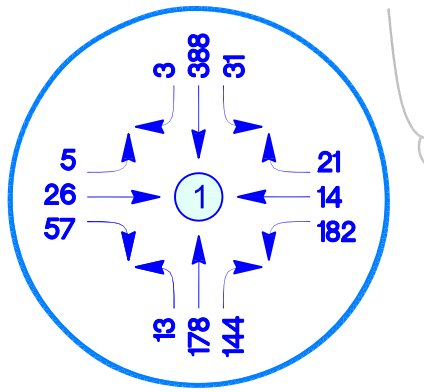
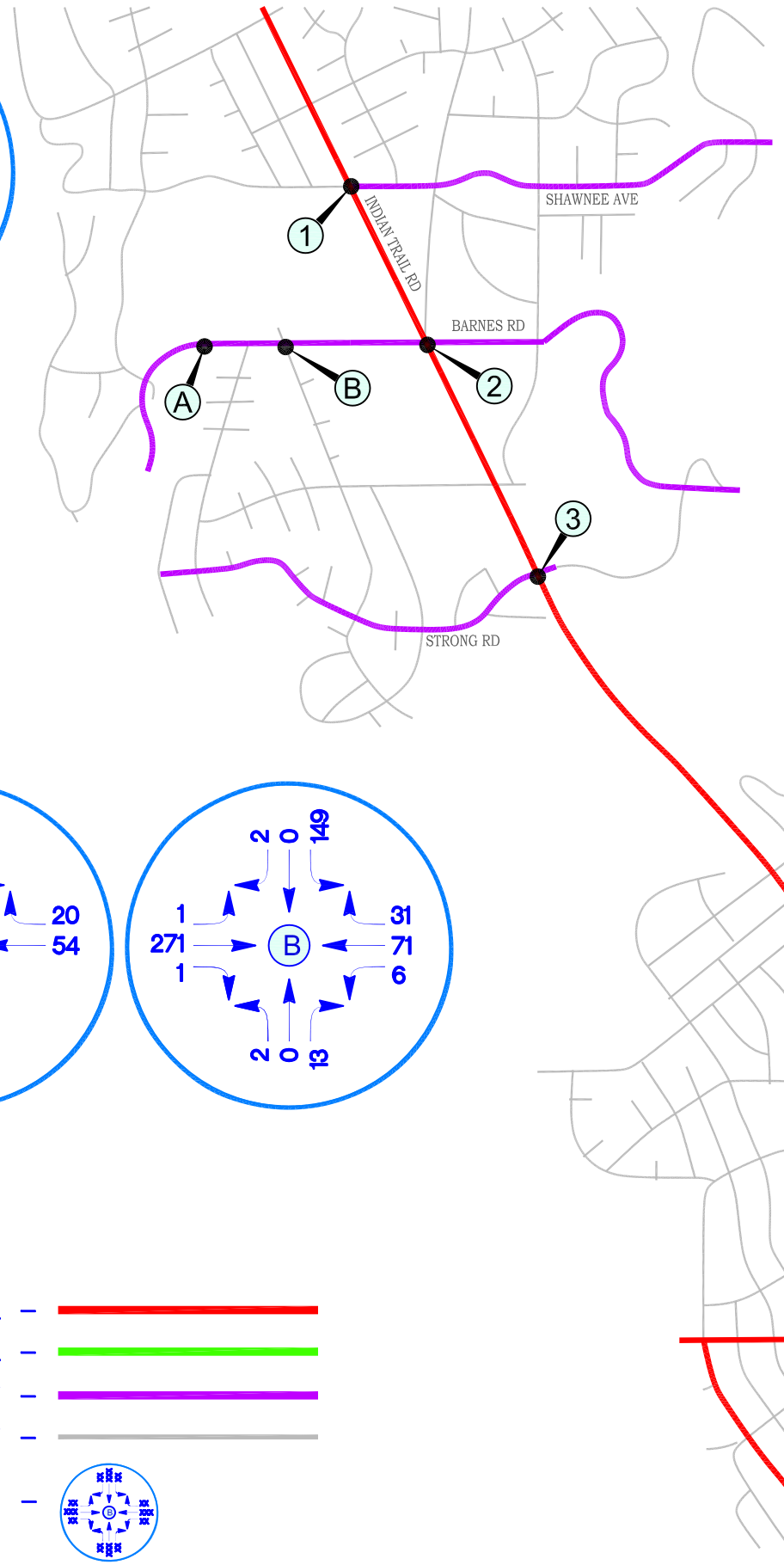
WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

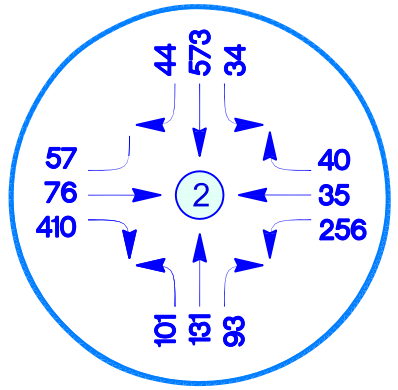
PROJECT TRIP ASSIGNMENTS - PM PEAK HOUR

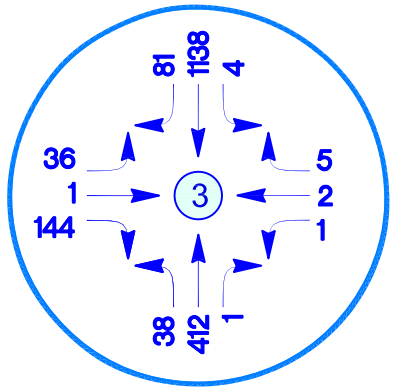
PROJECT NO. 5447.001

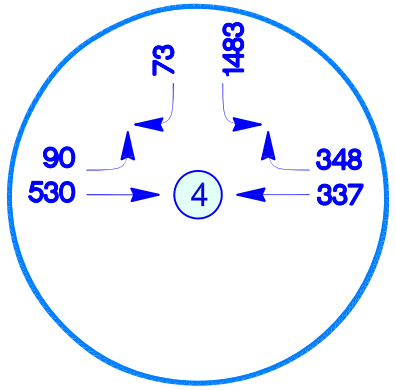
FIGURE NUMBER FIG. 10

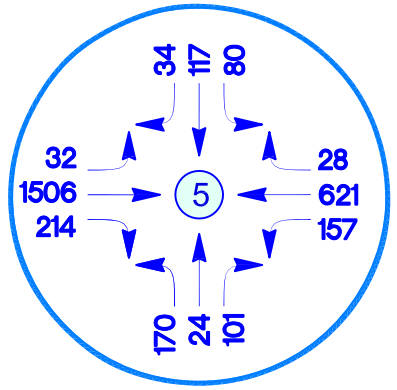


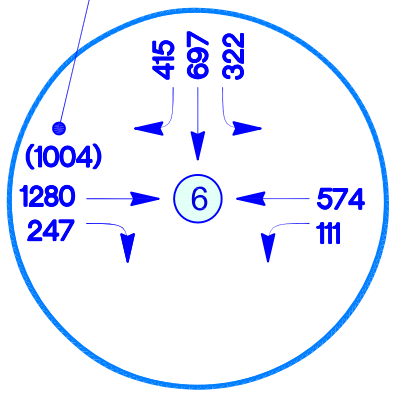


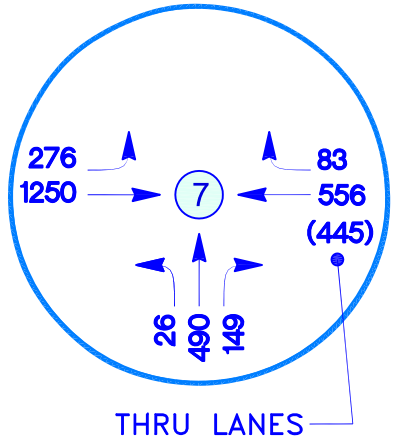


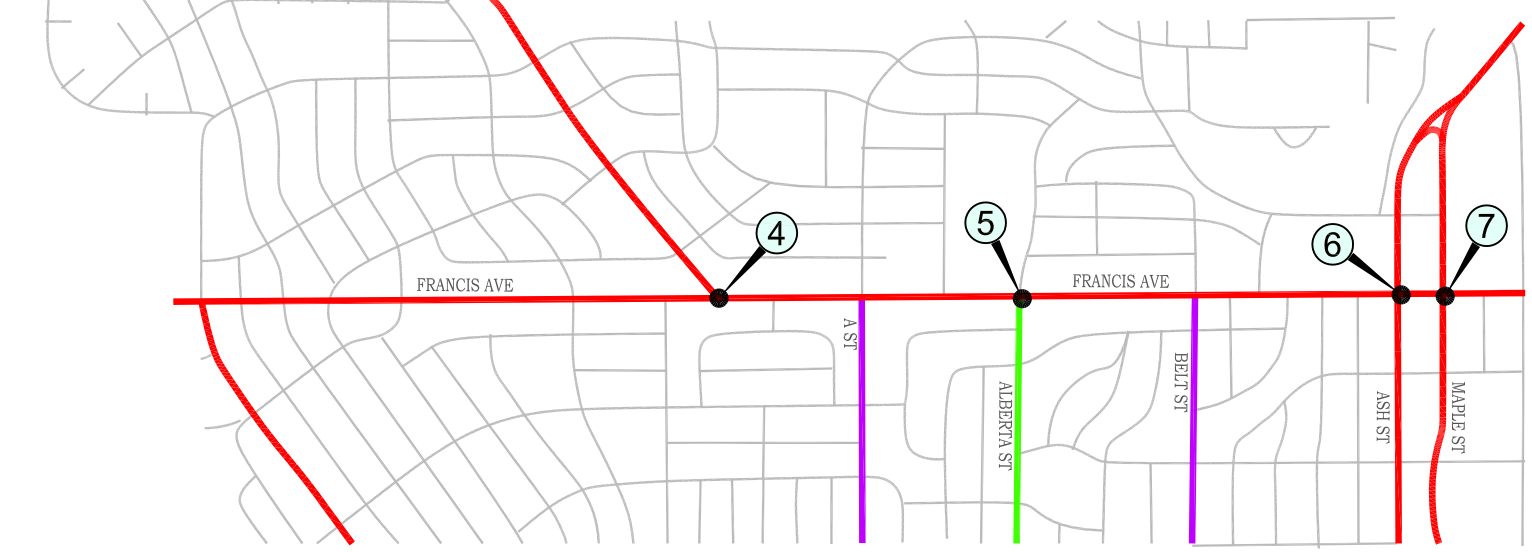


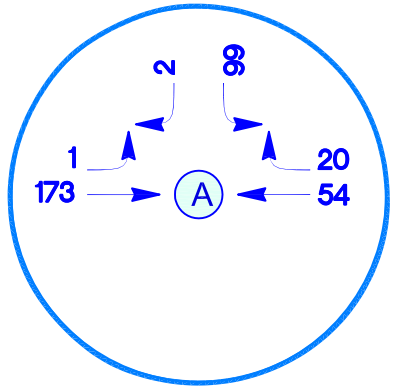












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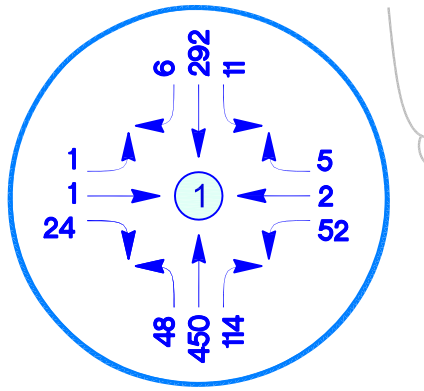
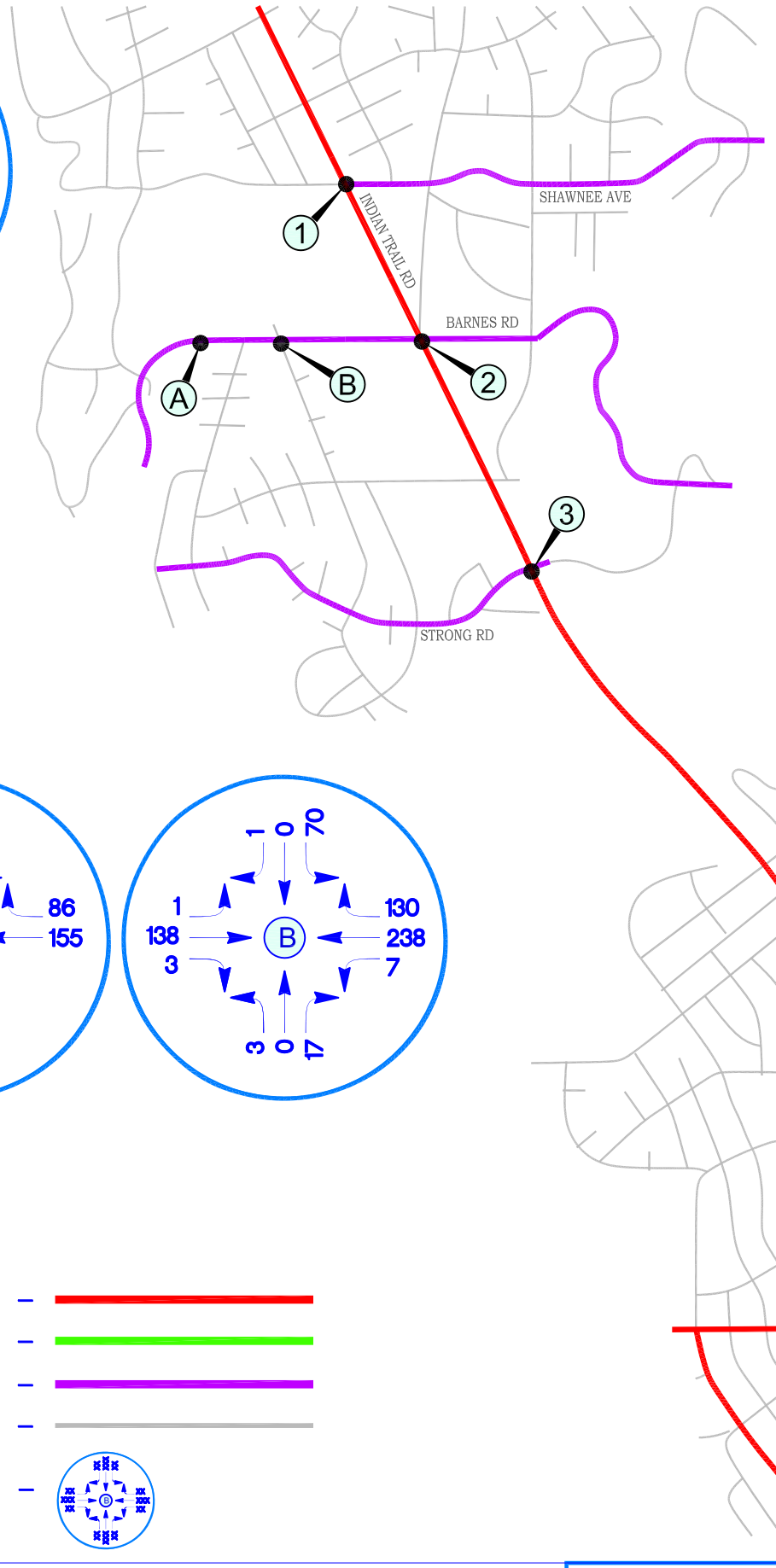
WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

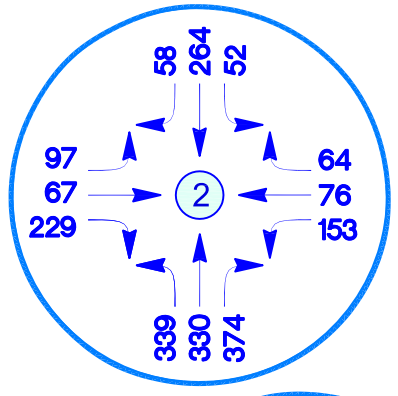
FUTURE WITH-PROJECT TRAFFIC VOLUMES - AM PEAK HOUR

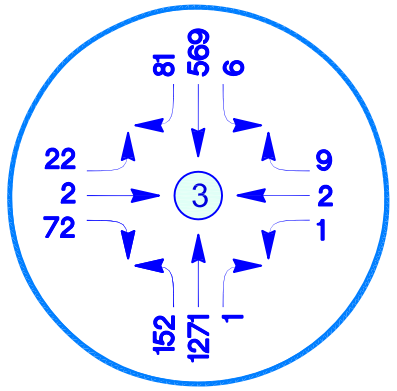
PROJECT NO. 5447.001

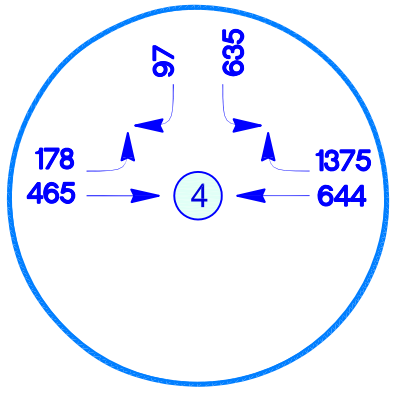
FIGURE NUMBER FIG. 11

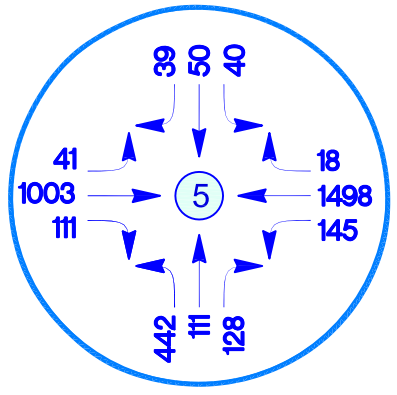


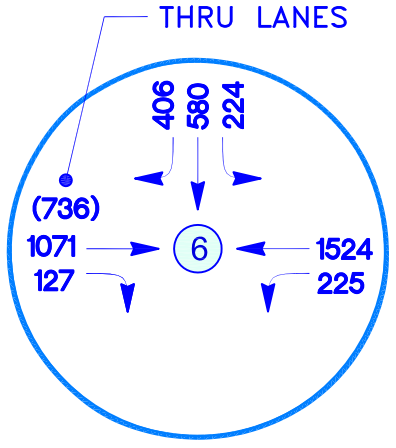


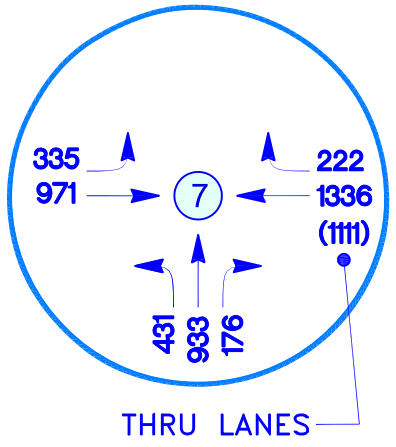


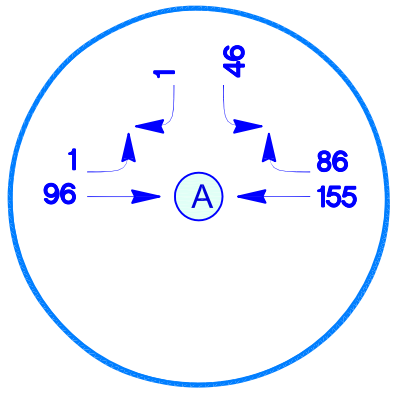


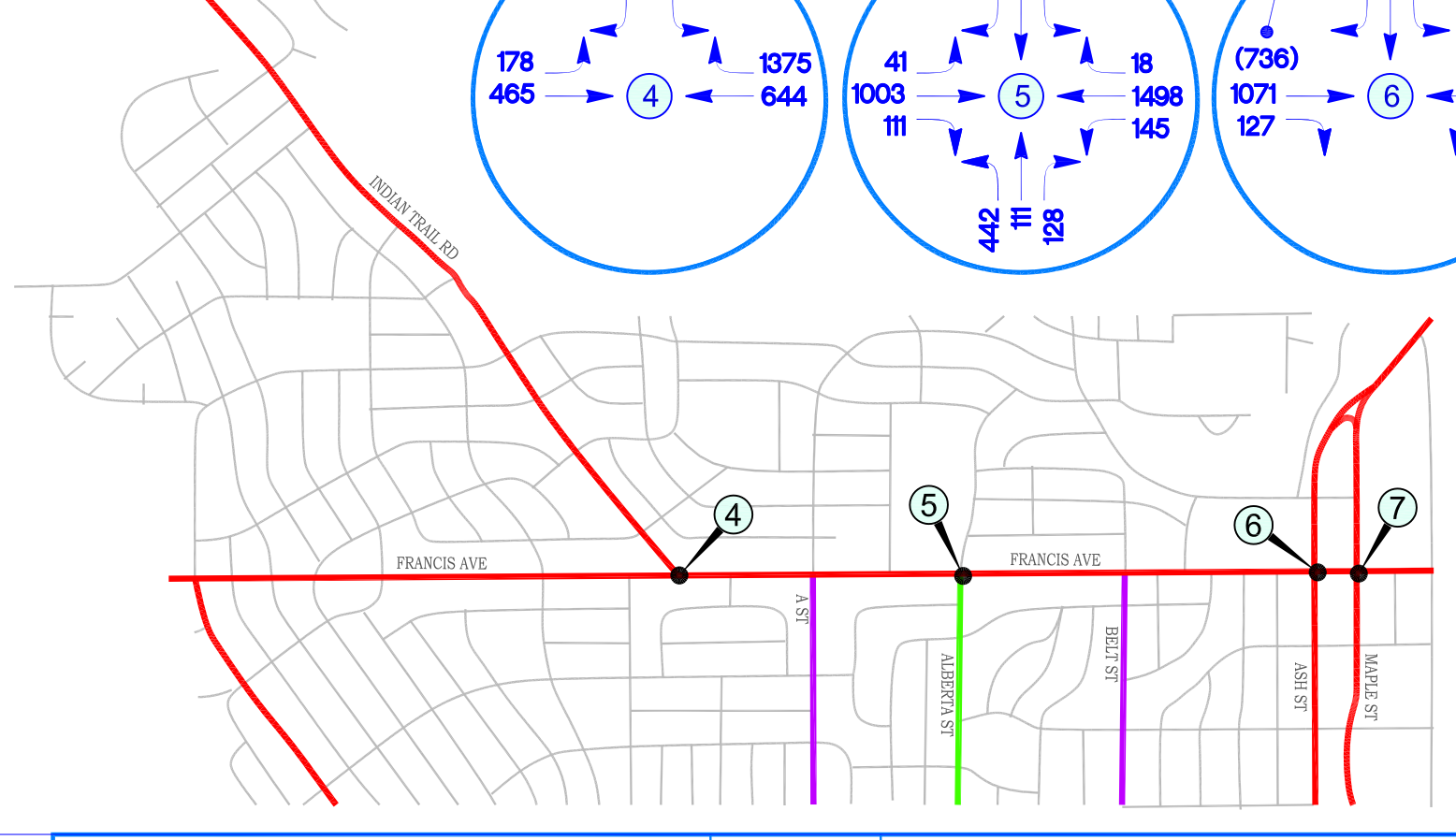












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WINDHAVEN APARTMENTS
TRAFFIC IMPACT ANALYSIS
SPOKANE WA

FUTURE WITH-PROJECT TRAFFIC VOLUMES - PM PEAK HOUR

PROJECT NO.
5447.001

FIGURE NUMBER
FIG. 12

Spokane regional travel demand model. The hand forecasting methodologies used in this study result in a 10 to 15 percent annual increase on the roadway connection during peak hours, which well exceeds the City projections of City staff.

These paragraphs have been added to this section to confirm that, while traffic increases on Barnes Road and Strong Road may occur (as a result of the extension) for numerous reasons (i.e. access to the Sundance Plaza Shopping Center, schools, alternative emergency routes, weather conditions, etc.), the overall forecasts are conservative when compared with the results of the City Technical Memorandum and, by extension, the results generated by the regional travel demand model. Thus, no additional traffic diversions of forecasts were addressed with this project, as the resulting traffic forecasts would likely be unrealistic for the year 2021 analysis horizon of this study.

3.3 TRAFFIC OPERATIONS

LOS and capacity analyses were performed based on a review of traffic forecasts, as summarized in Section 3.2, versus the road geometrics and traffic control conditions described in Section 3.1. This analysis was performed initially based on the current geometric conditions, as the Barnes Road extension only causes traffic to divert and does not impact capacity. The Indian Trail Road widening project was not included as the project is not fully funded. Table 11 provides a summary of resulting future without and with project LOS and control delays for the AM and PM peak hours.

Table 11. Forecast Year 2021 LOS and Delay - AM and PM Peak Hours

Year 2021 Condition	Future Without Project Traffic				Future With Project Traffic			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Signalized Intersections	LOS[1]	Delay[2]	LOS[1]	Delay[2]	LOS[1]	Delay[2]	LOS[1]	Delay[2]
Shawnee Ave/Indian Trail Rd	B	17.9	A	8.2	B	17.9	A	8.3
Barnes Rd/Indian Trail Rd	C	26.8	B	20.0	D	43.6	C	23.0
Strong Rd/Indian Trail Rd	C	20.2	D	52.4	D	37.3	E	68.8
Indian Trail Rd/Francis Ave	C	20.3	B	10.1	C	29.6	B	10.7
Alberta St/Francis Ave	E	65.6	D	53.7	E	78.3	E	59.4
Ash St/Francis Ave	C	26.1	C	21.3	C	28.9	C	21.5
Maple St/Francis Ave	B	17.6	D	51.4	B	17.6	D	54.0
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Unsignalized Intersections	LOS[1]	Delay	LOS[1]	Delay	LOS[1]	Delay	LOS[1]	Delay
Forest Ln/Barnes Rd	B	10.6	B	10.2	B	11.4	B	10.6
Pamela Ln/Barnes Rd	B	31.1	B	12.0	C	19.0	C	14.0

1. LOS = Levels-of-Service
2. Del = Delay in seconds

As indicated, LOS E is the threshold for signalized and unsignalized intersections along principal arterials within the City of Spokane. As shown, there are no intersection forecast to function below minimum thresholds during the forecast AM and PM peak hours. To be clear,

this does not say the typical driver may not experience some frustration as the result of longer wait times at intersections during peak hours, as compared with other timeframes of the typical weekday. However, principal arterials are intended to move high traffic volumes within the City and this LOS standard reflects this condition. Thus, citizens within the City have come to expect expect delays and higher traffic volumes along principal arterials; especially as the regional continues to growth.

A summary of conditions for each intersection is as follows:

- **Shawnee Avenue/Indian Trail Road.** This intersection operates within the LOS A/B range during peak hours, which is well above minimum thresholds. The highest traffic impacts at this intersection occur during the AM peak hour when the work commute and school traffic activities overlap.
- **Barnes Road/Indian Trail Road.** This signalized intersection will operate at acceptable LOS during the AM and PM peak hours, both without and with project development in year 2021. The work commute and shopping activities have the highest impacts upon this intersection during the AM peak hour.
- **Strong Road/Indian Trail Road.** This signalized intersection will operate at acceptable LOS during both peak hours. The work commute has the highest impact upon this intersection during the PM peak hour.
- **Barnes Road/Indian Trail Road.** This signalized intersection will operate at acceptable LOS during the AM and PM peak hours, both without and with project development in year 2021. The morning work commute will have the highest impact upon the intersection, as Indian Trail Road drivers wait to turn onto Francis Avenue.
- **Alberta Street/Francis Avenue.** This signalized intersection will function primarily within the LOS E range during the AM and PM peak hours. The works commutes, and to a lesser extent Salk Middle school travel demands, have high impacts at this intersection. Although operating within LOS tolerances, this intersection was identified to have the worse congestion analytically and through field observations and was the least improved by signal optimization evaluation (see below).
- **Ash Street/Francis Avenue.** This signalized intersection will operate at acceptable LOS C during the AM and PM peak hours, both without and with project development in year 2021. Impacts to this intersection principally occur as a result of the work commute.
- **Maple Street/Francis Avenue.** This signalized intersection will operate at acceptable LOS during the AM and PM peak hours, both without and with project development in year 2021. The highest impacts occur during the evening/homebound work commute.

It should be noted City of Spokane traffic engineering staff routinely works to “optimize” traffic signal performance in order to improve intersection and corridor mobility; especially along principal arterials such as Francis Avenue and Indian Trail. Although this study demonstrates no LOS issues at study intersections, as compared with code, it should be noted that enhanced performances (via improved LOS and/or reduced average vehicle delay) were identified analytically by modifying signal cycle lengths or phase splits in response to the higher travel demands identified with forecast traffic volumes. This confirms that City staff should have the ability to maintain traffic operations beyond levels stated in the report as the area continues to grow in the future.

Queue Potentials. Future with-project queue potentials were reviewed for signalized study intersections. Future without-project queuing was not shown as there was no difference in queue results. Again, most acceptable conditions are those where average and 95th percentile queues do not exceed lane/pocket storage. Tolerable conditions are those where average queues do not exceed lane storage/pocket length, even when 95th percentile queues do exceed storage. Unacceptable conditions are noted where both average and 95th percentile queues exceed available lane/pocket storage. A summary of queue conditions is shown by Table 12 for the AM and PM peak hours.

Table 12. Future With-Project Queue Potentials - AM and PM Peak Hours

Signalized Intersections	Lane Capacity	AM Peak		PM Peak	
		Avg.	95%	Avg.	95%
Shawnee Ave/Indian Trail Rd					
- Northbound Left-Turn Lane	7 vehicles[1]	1 vehicle	1 vehicles	1 vehicle	1 vehicle
- Northbound Right-Turn Lane	3 vehicles	1 vehicle	1 vehicle	1 vehicle	1 vehicle
- Southbound Left-Turn Lane	3 vehicles[1]	1 vehicle	1 vehicle	1 vehicle	1 vehicle
- Southbound Right-Turn Lane	3 vehicles	0 vehicle	0 vehicle	1 vehicle	1 vehicle
- Westbound Left-Turn Lane	3 vehicles	5 vehicle	7 vehicles	1 vehicle	2 vehicles
- Eastbound Left-Turn Lane	3 vehicles	1 vehicle	1 vehicles	0 vehicle	1 vehicles
Barnes Rd/Indian Trail Rd					
- Northbound Left-Turn Lane	8 vehicles[1]	1 vehicle	3 vehicles	4 vehicles	14 vehicles
- Northbound Right-Turn Lane	5 vehicles	0 vehicle	2 vehicle	1 vehicle	6 vehicles
- Southbound Left-Turn Lane	7 vehicles[1]	1 vehicle	2 vehicles	1 vehicle	2 vehicles
- Westbound Left-Turn Lane	6 vehicles	4 vehicles	9 vehicles	2 vehicles	5 vehicles
- Eastbound Left-Turn Lane	4 vehicles	1 vehicle	3 vehicles	2 vehicles	4 vehicles
Strong Rd/Indian Trail Rd					
- Northbound Left-Turn Lane	7 vehicles[1]	1 vehicle	2 vehicles	1 vehicle	3 vehicles
- Northbound Right-Turn Lane	4 vehicles	0 vehicle	0 vehicle	0 vehicle	0 vehicle
- Southbound Left-Turn Lane	7 vehicles[1]	1 vehicle	1 vehicle	1 vehicle	1 vehicle
- Southbound Right-Turn Lane	4 vehicles	1 vehicle	1 vehicle	1 vehicle	1 vehicle
- Eastbound Right-Turn Lane	8 vehicles	2 vehicles	3 vehicles	1 vehicle	1 vehicle
Indian Trail Rd/Francis Ave					
- Westbound Right-Turn Lane	16 vehicles[2]	0 vehicle	2 vehicles	22 vehicles	33 vehicles
- Eastbound Left-Turn Lane	2 vehicles	1 vehicle	2 vehicles	2 vehicle	7 vehicles
Alberta St/Francis Ave					
- Northbound Left-Turn Lane	9 vehicles[1]	5 vehicles	8 vehicles	11 vehicles	21 vehicles
- Southbound Left-Turn Lane	4 vehicles	2 vehicles	4 vehicles	2 vehicle	3 vehicles
- Westbound Left-Turn Lane	8 vehicles[1]	3 vehicles	9 vehicles	5 vehicles	10 vehicles
- Eastbound Left-Turn Lane	8 vehicles[1]	1 vehicle	2 vehicles	1 vehicle	3 vehicles
Ash St/Francis Ave					
- Southbound Left-Turn Lane	21 vehicles	6 vehicles	10 vehicles	5 vehicles	8 vehicles
- Southbound Right-Turn Lane	21 vehicles	5 vehicles	9 vehicles	9 vehicles	18 vehicles
- Westbound Left-Turn Lane	20 vehicles[1,3]	3 vehicles	6 vehicles	6 vehicles	7 vehicles
Maple St/Francis Ave					
- Northbound Left-Turn Lane	13 vehicles	1 vehicle	2 vehicle	8 vehicles	20 vehicle
- Eastbound Left-Turn Lane	20 vehilces[1,3]	7 vehicles	9 vehicles	6 vehicles	17 vehicles

1. Transitions into a TWLTL, so additional storage can be available.
2. Free movement which turns into a designated receiving lane, so queues not as critical.
3. The designated left-turn lane is broken by an intersection so queue pocket is a two-length measurement.

As shown, all average queues are accommodated within available turn lane/pocket lengths, again with the exception of the westbound left-turns at Shawnee Avenue/Indian Trail Road during the short duration of school traffic. 95th percentile exceptions are noted at the following locations:

- Shawnee Avenue/Indian Trail Road – The 95th percentile queue exceeds the turn pocket by 4 vehicles during the AM peak hour.
- Barnes Road/Indian Trail Road – 95th percentile queues will exceed storage within the northbound left-turn lane, northbound right turn lane, and westbound left-turn lane between the peak hours. There are no average queue exceptions within the northbound right-turn or westbound left-turn lanes. There were queue issues noted in the northbound left-turn lane turning the PM peak hour.
- Indian Trail Road/Francis Avenue – Eastbound left-turn 95th percentile demands exceed storage by 5 vehicles during the PM peak hour; although average queues are within lane storage. Average and 95th percentile queues exceed storage "on paper" within the westbound right-turn lane. This issue may be overstated though, as in the field this designated right turn has free movement that transitions directly into a northbound lane with no immediate conflict.
- Alberta Street/Francis Avenue – Average and 95th percentile queues exceed storage within the northbound left-turn lane during both peak hours; although again there is a shared left-turn lane at this intersection. Thus, this issue may be moderately overstated (although drivers do indicate long wait times at the intersection). 95th percentile queues exceed storage within the westbound left-turn lane during both peak hours; although there are no average queue issues. This lane does transition into a TWLTL, so additional storage is available outside of through lanes.
- Maple Street/Francis Avenue – 95th percentile queues exceed available storage within the northbound left-turn lane at the intersection during the PM peak hour. Average queues are accommodated with the lane.

Indian Trail Lane Capacity. Forecast lane capacities were reviewed for the three count locations identified previously along on Indian Trail Road. Capacities were reviewed for the future with-project condition only, as there was minimal difference in results between this and the without-project condition. A summary of the resulting lane capacities are shown in Table 13 for the AM and PM peak hours.

Table 13. Future With-Project Indian Trail Lane Capacity - AM and PM Peak Hours

	Capacity			AM Peak Hour			PM Peak Hour		
Indian Trail Road	NB	SB	Tot	NB	SB	Tot	NB	SB	Tot
N/of Weile Ave	1,800	1,800	3,600	376	1,396	1,772	1,351	732	2,083
N/of Kathleen Ave	900	900	1,800	385	1,483	1,868	1,410	781	2,191
N/of Lowell Ave	900	900	1,800	371	1,360	1,731	1,211	790	2,001

As shown, lane capacity is still sufficient within the four lane section of Indian Trail Road north of Weile Avenue. Forecast traffic volumes further demonstrate the need for lane widening along

Indian Trail Road, as volumes well exceed single lane capacity in the southbound direction during the AM peak hour and the northbound direction during the PM peak hour.

3.4 TRANSIT

STA is responsible for adjusting transit service throughout the City. Routes can be changed, alternated, diverted, or increased upon petition; however, there needs to be a very compelling reason to make a change. The completion of Windhaven alone would not provide the platform for any change. And given there is adequate weekday service, this TIA does not find any reason to do so regardless. In addition, the close proximity of transit access, within ¼ mile to the east, does not dictate the need for service to be diverted nearer to the Windhaven site.

3.5 PEDESTRIAN AND BICYCLE FACILITIES

As indicated, pedestrian access/mobility and circulation is generally well-served within the project study area; with adequate sidewalk access provided between Windhaven and nearby public facilities, transit, and shopping centers. No improvements seem to be necessary in relation to project development.

Designated commuter bike routes are available within the study area on Indian Trail Road and Barnes Road. Again, these are facilities where vehicle and bike activity share common right-of-way along both streets. Ideally, a recreational bike route would be of benefit to the Indian Trail neighborhood, as delineated via designated bike lanes and/or off-street roadways or pathways. However, while identified via this study as a need for the area, this is a non-project related issue.

4 IMPROVEMENT RECOMMENDATION & MITIGATION

There were no operational deficiencies (LOS exceptions) for study intersections. Some 95th percentile queue issues were noted with this analyses; however, it is not typical nor recommended by this study to recommend maximum queues as these are conditions that only occur a few times each peak hour (minimal cost-to-benefit). Thus, on the basis of intersection operations and queue potentials, there were no improvement needs identified within the project study area and no project-specific improvements to mitigate unacceptable traffic impacts.

With that said, existing and forecast traffic volumes were noted to exceed lane capacities within and north of the traffic bottleneck area of Indian Trail Road (north of Kathleen Avenue). As such, this section recommends an intermediate measure to help with traffic mobility within the short term future and confirms the need for long-term roadway widening. Also discussed are the development mitigation fee potential and a recommended use of development funds.

4.1 INDIAN TRAIL ROAD RESTRIPING – SHORT TERM

Currently, Indian Trail Road is comprised of a three-lane cross section north of Kathleen Avenue to Lowell Avenue, a distance of about 4,600 feet. This includes one northbound, one southbound, and one center two-way left-turn lane (TWLTL). The width of the roadway ranges from 43 and 44 feet between Kathleen Avenue and Lowell Avenue. The northbound and southbound lanes have a width of about 15 feet, respectively, and the TWLTL about 13 feet.

Travel demands appear to be most significant (with higher volume) and most condensed during the AM peak hour of the typical weekday. In addition, citizens of the Indian Trail neighborhood confirm morning congestion, especially exiting the area, is of most concern on the bases of emergency egress and general traffic congestion. As such, this study recommends the restriping of Indian Trail Avenue to include two southbound travel lanes and one northbound travel lane, while maintaining a TWLTL. City officials agree maintaining the TWLTL is important for better preserves safety along the roadway, as versus an additional northbound lane.

Prevailing design resources such as *A Policy on Geometric Design of Highways and Streets* (AASHTO, 2011) indicate "Lane widths of 3.0 m [10 ft] may be used in more constrain areas where track and bus volumes are relatively low and speeds are less than 60 km/h [35 mph]." In fact, this resource goes on to indicate narrower lanes/streets have the advantages of slowing travel speeds and reducing pedestrian crossing times. Thus, the roadway could be restriped to include two 10.5 foot southbound travel lanes, an 11 foot TWLTL, and an 11 foot northbound travel lane; all within a minimum street width of 43 feet.

It is estimated this project would include the removal of approximately 4,500 s.f. of existing roadway stripe with application of about 6,000 s.f. of new stripe. This would provide needed and more desirable (by the neighborhood) southbound capacity along Indian Trail Road; helping to maintain mobility and emergency egress until widening could occur. The narrowing could also slow travel speeds, noted with this study to exceed posted speed limits during peak hours.

4.2 INDIAN TRAIL ROAD WIDENING – LONG TERM

The lane capacity analysis confirms widening of Indian Trail Road is ultimately needed to help move through traffic in both the northbound and southbound travel directions. Counts currently

support this need, with year 2021 traffic forecasts demonstrating even further need. As indicated, this improvement is already programmed into the City TIF. Thus, the project is a priority for City officials, and they will likely move the project forward as soon as sufficient funding is secured for the project.

4.3 MITIGATION - TRAFFIC IMPACT FEES

Traffic Impact Fees. The project is responsible for mitigating traffic impacts via transportation impact fee (TIF) contribution, as defined in Spokane Municipal Code Chapter 17D.075. The fee scheduled for the Northwest Service Area, within which the project is located, is $483.49 per until for two-story apartments and $296.33 for three-story apartments. Thus, the Windhaven development would be conditioned with up to **$362,620** of traffic impact fees ($483.49 * 750 two-story apartments), as collected prior to the issuance of any building permit on a per-unit/home or development phase basis ($483.49 per unit at a time).

Normally, a development TIF contribution is placed into an account dedicated towards improvements located within a specific service area: in this instance, the Northwest Service Area. City officials work to address/construct improvements within the service area as quickly as possible, but the timing of improvement construction is highly dependent upon funding acquisitions between the TIF and a number of other sources and a number of other factors. Safety issues, high congestion, and even funding specification, limitation, or accumulation can vary for each improvement. Thus, there is no guarantee that a developer contribution within a given neighborhood (of a service area) would go towards specific improvements due to the variability of these aforementioned conditions.

For example, there are currently a number of roundabouts specified within the Northwest Service Area of the City. Opportunities for specific intersection safety or efficiency grants may arise through State or Federal Government resources in the future, and these may require specific "match" moneys to secure. Thus, City officials would use TIF funds as "match" money to secure the grant, and this would move a roundabout(s) into a position for construction over other improvements within the Northwest Service Area. In other words, City officials must be adaptable and opportunistic in securing funds for TIF improvements, even at the expense of other improvements.

Development Recommendation. There is need for improvements to Indian Trail Road, both intermediate and long term, in order to assure safety and mobility for the arterial. As such, the project proponent has offered the following through this TIA to help advance the interests of the City and specifically the Indian Trail neighborhood. The project proponent offers to:

1) Front the costs of restriping Indian Trail Road, either to be managed/constructed privately or as a City project, to provide more immediate congestion relief. The costs for this would be reduced from the total TIF potential of $362,620 owed/conditioned for the project.
2) Front a substantial portion of the total TIF, as opposed to a per unit or phase basis, so City officials would have more immediate opportunities for design, ROW acquisition, and/or "match" funding to advance the ultimate widening of Indian Trail Road more quickly versus what may normally occur within TIF processes.

These concessions would be a function of a development agreement per specifics developed between the City and the project proponent.

5 PUBLIC INVOLEMENT

To be added to final TIA following comments collected at May 25 project public meeting.

6 SUMMARY AND CONCLUSIONS

Windhaven First Addition is an approved City residential development that occupies 49.48 acres aligned north of Barnes Road and west of Indian Trail Road within the Indian Trail neighborhood of Spokane. The project was initially approved in year 2006 for the construction of 286 single family homes developed approximately five years. No homes have been constructed yet; although the street infrastructure for the development is complete. This includes primary vehicle access to Barnes Road via Forest Lane and Pamela Lane, with secondary access provided to the adjacent apartment development (to the east) via Jamestown Lane. The project is within an RSF zone of the City with a site Comprehensive Plan designation of Residential 4-10.

Due to evolving market conditions, the project proponent has recently proposed to develop up to 750 apartment units on the site as opposed to single family homes. The proposal results in a density of 15.2 homes per acres, which exceeds the approved residential density. Thus, a Comprehensive Plan amendment and zone change would be needed to accommodate the proposal; specifically to a RMF zone and Comprehensive Plan designation of Residential 15-30.

Note the proposed apartment density marginally exceeds minimum zoning and Comprehensive Plan allowances, and is just under half of maximum allowable densities (of up to 30 apartments per acre). The reduced density was accommodated to minimize the traffic impacts of the proposed development on the Indian Trail neighborhood; as this was expressed as a concern of citizens living within the area. The developers have reduced site densities considerable from initial development proposals.

Site access is promoted as described previously, with primary access provided via Forest Lane and Pamela Street and secondary access via Jamestown Lane.

Per City concurrency evaluations, Windhaven First Addition with 286 homes is vested to generate 210 trips during the AM peak hour and 271 trips during the PM peak hour. This would represent the trip generation equivalent of 460 apartment units. This distinction is important because it demonstrates that 46 percent of the current apartment proposal could be developed before surpassing vested/programmed traffic generation levels.

This TIA is responsible for addressing the net gain in trips over those vested/identified above. The current 750 unit apartment proposal represents a net gain in trip generation of 161 trips during the AM peak hour and 159 trips during the PM peak hour over those vested/associated with single family home development. About 21 percent of project trips are anticipated to/from the east on Barnes Road (via the new extension and connection to Strong Road). About 9 percent of project trips are anticipated to/from the north and 70 percent to/from the south on Indian Trail Road. The majority of project trips along Indian Trail Road south will travel to/from the east on Francis Avenue; distributing throughout a study area that addresses the Alberta Street and Maple/Ash Couplet intersections with Francis Avenue.

6.1 TRAFFIC FORECASTS AND CAPACITY

City officials require this study address traffic operations principally for site access intersections and seven off-site intersections most impacted by development within the Indian Trail neighborhood. The analysis was required for the AM and PM peak hours of the typical weekday, as based on the forecast year 2021 completion year of the project.

Existing Conditions. Traffic counts were performed during typical weekdays in March and April to capture the peak demands of the morning and afternoon commutes. These counts were performed specifically while local schools were in session, as to capture the travel demands of these special traffic generators.

City of *Spokane Administrative Policy and Procedure for Transportation Concurrency Level of Service Standards* defines a LOS E standard for signalized and unsignalized intersections aligned along a principal arterial. An analysis of existing traffic operations indicates there were no levels-of-service (LOS) issues identified within the field, as all intersections were shown to function at LOS E or better between the AM and PM peak hours.

Secondary lane capacity analyses and speed counts were performed discretionarily to support conclusions for Indian Trail Road. The lane analysis was used to help identify whether adequate capacity exists for through traffic (northbound and southbound movements) outside of study intersections along Indian Trail Road. Lane capacities were reviewed for three count locations within the vicinity of the "bottleneck" on Indian Trail Road: 1) north of Weile Avenue (south of bottleneck); 2) north of Kathleen Avenue (within bottleneck); and 3) north of Lowell Avenue (north of Bottleneck).

The analysis indicates lane capacity is sufficient within the four lane section of Indian Trail north Road north of Weile Avenue. However, existing counts are shown to exceed directional lane capacities within specifically within the bottleneck area north of Kathleen Avenue. There is minor lane capacity exceptions noted north of Lowell Avenue, but overall capacity appears to be sufficient north of the bottleneck. A comparison/review of this data does suggest need for lane widening as based on existing count data.

Despite lane capacity results, travel speeds within the corridor do not seem to be overly compromised. Speed counts were performed at the locations identified/reviewed above, south of, within, and north of the bottleneck area along Indian Trail Road. Average travel speeds were found to be 3 to 6 mph above the posted 30 mph speed limit along the roadway during AM and PM peak hours in both travel directions. The conclusion from this is that, while additional capacity is needed, the travel time of typical commuters is not yet impacted.

Future Conditions. Future 2021 traffic volumes were developed for operational analyses assuming: 1) baseline (non-development associated) traffic growth, 2) the development of eleven study area pipeline projects (including vested Windhaven First Addition), and 3) the assignment of project trips. A 0.5 percent annual growth rate was applied to counts to reflect baseline (non-development) traffic growth. This growth was combined with the trips generated by pipeline projects to generate future without project traffic forecasts.

Finally, project trip assignments and future without project traffic volumes were combined to generate future with-project traffic forecasts. The resulting traffic forecasts result in growth rates of between 6 and 7 percent annually on Indian Trail Road, which far exceeds historical growth rates ranging between 1 and 1.5 percent annually. Thus, traffic forecasts are very conservative for year 2021 and may be more representative of long term traffic growth (beyond year 2021).

Future intersection analyses indicated that no LOS issues were noted based upon a review of future year 2021 traffic forecasts. This determination is made because no study intersection is

forecast to function below LOS E on the principal arterials of Indian Trail Road or Francis Avenue during the peak hours. LOS at site access intersections are also shown to operate acceptably at LOS C or better during the peak hours.

City of Spokane traffic engineering staff routinely works to "optimize" traffic signal performance in order to improve intersection and corridor mobility; especially along arterials such as Francis Avenue and Indian Trail. Although this study demonstrates no LOS issues at study intersections, compared with code, it should be noted that enhanced performances (via improved LOS and/or reduced average vehicle delay) were identified analytically by modifying signal cycle lengths or phase splits in response to the higher travel demands identified with forecast traffic volumes. This confirms City staff should have the ability to maintain traffic operations beyond levels stated in the report as the area continues to grow in the future.

Forecast lane capacity was still shown to be sufficient within the four lane section of Indian Trail north Road north of Weile Avenue. Forecast traffic volumes further demonstrate the need for lane widening along Indian Trail Road north of Kathleen Avenue (within bottleneck) and north of Lowell Avenue (north of Bottleneck). This determination is confirmed because forecast traffic volumes well exceed single lane capacity in the southbound direction during the AM peak hour and the northbound direction during the PM peak hour.

Pedestrian, Bike, and Transit. Pedestrian, bicycle, and transit access conditions are favorable within the project vicinity. Sidewalk is contiguous between the developments and nearby transit stops, shopping centers, and public facilities (a library and a park). There are commute bicycle routes on Indian Trail Road and Barnes Road; although some form of designated bike lanes for recreational facilities would be ideal in the future (such remediation is beyond the scope of development projects). Finally STA transit access to Indian Trail Road is sufficient on weekdays, with transit stops located within walking distance about ¼- mile east of Windhaven.

6.2 IMPROVEMENT RECOMMENDATIONS AND MITIGATION

The project is responsible for mitigating traffic impacts via transportation impact fee (TIF) contribution. The fee scheduled for the Northwest Service Area, within which the project is located, is $483.49 per until for two-story apartments and $296.33 for three-story apartments. Thus, the Windhaven development would be conditioned with up to **$362,620** of traffic impact fees ($483.49 * 750 two-story apartments), as collected prior to the issuance of any building permit on a per-unit/home or development phase basis.

A short term improvement was recommended and long term improvement confirmed for Indian Trail Road, in order to promote traffic mobility and safety. These recommendations and project mitigation proposals are as follows:

1. **Improvement.** Restripe Indian Trail Avenue to include two southbound travel lanes and one northbound travel lane, while maintaining a TWLTL, between Kathleen Avenue and Lowell Avenue. The project could be accommodated with narrow, but still acceptable, travel lanes striped within the 43 to 44 foot paved section that exists along this section of the arterial. This would provide needed and more desirable (by the neighborhood) southbound capacity along Indian Trail Road; helping to maintain mobility and emergency egress until widening could occur.

   Mitigation. The project proponent has offered to front the costs of restriping Indian Trail Road, either to be managed/constructed privately or as a City project, to provide more

immediate congestion relief. The costs for this would be reduced from the total Windhaven TIF potential of $362,620 owed/conditioned for the project.

2. **Improvement.** Lane capacity analyses confirm the need for widening Indian Trail Road between Kathleen Avenue and Lowell Avenue. This is a congestion improvement that would enhance mobility and provide for improved emergency ingress and egress.

   Mitigation. The project proponent has offered to front a substantial portion of the Windhaven total TIF, as opposed to a per unit or phase basis, so City officials would have more immediate opportunities for design, ROW acquisition, and/or "match" funding (for grants) to advance the ultimate widening of Indian Trail Road. This should allow the project to advance more quickly versus what may normally occur within TIF processes.

These concessions would be a function of a development agreement per specifics developed between the City and the project proponent. The conditions would be promoted shortly following Comp. Plan amendment, zone change approvals, and/or construction approvals, as coordinated with the City.

6.3 PUBLIC PARTICIPATION

To be added to final TIA following comments collected at May 25 project public meeting.

6.4 SUMMARY

The improvements and mitigation described will address project-related deficiencies noted throughout the TIA (specifically for Indian Trail Road). The project will contribute $362,620 towards mitigation of area deficiencies, via the TIF; specifically working to promote intermediate and long-term improvements for Indian Trail Road, if approved by the City. Thus, this TIA should successfully support the zone change and comprehensive plan modifications being sought with the 750 unit apartment project proposal being sought for Windhaven, as project impacts will be addressed.

No further recommendations are provided by this TIA.

Appendix A

Glossary of Terms

This section of the Technical Appendix provides a glossary of terms. The *Highway Capacity Manual* (TRB, 2010) and the *Transportation Impact Analyses for Site Development* (ITE, 2005) were used to help with the development of the following definitions:

- **Access point** – An intersection, driveway, or opening on a roadway that provides access to a land use or facility.
- **All-way stop-controlled** – An intersection with stop signs located on all approaches.
- **Arterial** – (General Definition) A signalized street that primarily serves through-traffic and secondarily provides access to abutting properties.
- **Average daily traffic (ADT)** – The average 24 hour traffic volume at a given location on a roadway.
- **Capacity** – The number of vehicles or persons that can be accommodated on a roadway, roadway section, or at an intersection over a specified period of time. Capacity is also a term used to define limits for transit, pedestrian, and bicycle facilities. Concept typically expressed as vehicles per hour, vehicles per day, or persons per hour or per day.
- **Collector street** – (General Definition) A surface street providing land access and traffic circulation within residential, commercial, and industrial areas.
- **Cycle** – A complete sequence of cycle indicators.
- **Cycle length** – The total time for a signal to complete one cycle.
- **Delay** – The additional travel time experienced by a driver, passenger, or pedestrian.
- **Demand** – The number of users desiring service on a highway system or street over a specified time period. Concept typically expressed as vehicles per hour, vehicles per day, or persons per hour or per day.
- **Departing sight distance** – The length of road required for a vehicle to turn from a stopped position at an intersection (or driveway) and accelerate to travel speed.
- **Downstream** – The direction of traffic flow.
- **Functional class** – A transportation facility defined by the traffic service it provides.
- **Growth factor** – A percentage increase applied to current traffic demands or counts to estimate future demands/volumes.
- **Level of Service** – The standard used to evaluate traffic operating conditions of the transportation system. This is a qualitative assessment of the quantitative effect of factors such as speed, volume of traffic, geometric features, traffic interruptions, delays and freedom to maneuver. Operating conditions are categorized as LOS A through LOS "F". LOS A generally represents the most favorable driving conditions and LOS F represents the least favorable conditions.
- **Mainline** – The primary through roadway as distinct from ramps, auxiliary lanes, and collector-distributor roads.
- **Major Street** – The street not controlled by stop signs at a two-way stop-controlled intersection.
- **Minor arterial** – (General Definition) A functional category of a street allowing trips of moderate length within a relatively small geographical area.
- **Operational analysis** – A use of capacity analysis to determine the level of service on an existing or projected facility, with known or projected traffic, roadway, and control conditions.

- **Peak Generator Hour** – The single hour (or hours) in a day during which trip generation for a development or land use is highest.
- **Peak hour** – Single hour (or hours) in a day during which the maximum traffic volume occurs on a given facility (roadway, intersection, etc.). Typically the peak hour is known as the "rush" hour that occurs during the AM or PM work commutes of the typical weekday. The absolute peak hour of the day can also be referred to as the design hour.
- **Peak Generator Hour** – The peak hourly volume generated by a particular development or land use. In the context of traffic reports, the generator hour can occur in the morning and afternoon, described as AM and PM peak generator hours, respectively.
- **Peak hour factor** – The hourly volume during the maximum-volume hour of the day divided by the peak 15-minute flow rate within the peak hour; a measure of traffic demand fluctuation within the peak hour.
- **Principal Arterial** - (General Definition) A major surface street with relatively long trips between major points, and with through-trips entering, leaving, and passing through the urban area.
- **Queue** – A line of vehicles, bicycles, or persons waiting to be served by the system in which the flow rate from the front of the queue determines the average speed within the queue. Slower moving vehicles or people joining the rear of the queue are usually considered a part of the queue.
- **Roadside obstruction** – An object or barrier along a roadside or median that affects traffic flow, whether continuous (e.g., a retaining wall) or not continuous (e.g., light supports or a bridge abutment).
- **Road characteristic** – A geometric characteristic of a street or highway, including the type of facility, number and width of lanes, shoulder widths and lateral clearances, design speed, and horizontal and vertical alignment.
- **Roundabout** – An unsignalized intersection with a circulatory roadway around a central island with all entering vehicles yielding to the circulating traffic.
- **Shoulder** – A portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, emergency use, and lateral support of the subbase, base, and surface courses.
- **Stopping sight distance** – The length of road needed for a moving vehicle to come to a complete stop prior to an obstruction sighted on the road.
- **Traffic conditions** – A characteristic of traffic flow, including distribution of vehicle types in the traffic stream, directional distribution of traffic, lane use distribution of traffic, and type of driver population on a given facility.
- **Travel speed** – The average speed, in miles per hour, of a traffic computed as the length of roadway segment divided by the average travel time of the vehicles traversing the segment.
- **Travel time** – The average time spent by vehicles traversing a highway segment, including control delay, in seconds per vehicle of minutes per vehicle.
- **Trip Distribution and Assignment** – The predicted travel patterns of vehicle trips as they approach and depart a land use. Distribution refers to the travel pattern, usually defined in percentages or fractions, and assignment refers to vehicle trip ends.

- **Traffic forecast** – The predicted traffic volume of the analysis horizon year or time period. Most typically predicted for the weekday, AM peak hour, PM peak hour, or AM or PM peak generator hours of the typical weekday.
- **Traffic impact analysis** – A *traffic impact analysis* (TIA) is an engineering and planning study that forecasts the potential traffic and transportation impacts of a proposed development on an area, neighborhood, or community. Reports can also be referred to as a traffic impact study (TIS).
- **Trip generation** – The number of vehicle trips generated by a development or land use. Most typically predicted for the weekday, AM peak hour, PM peak hour, or AM or PM peak generator hours of the typical weekday.
- **Two-way left-turn lane** – A lane in the median area that extends continuously along a street or highway and is marked to provide a deceleration and storage area, out of the through-traffic stream, for vehicles traveling in either direction to use in marking left turns at intersections and driveways.
- **Two-way stop-controlled** – The type of traffic control at an intersection where drivers on the minor street or driver turning left from the major street wait for a gap in the major-street traffic to complete a maneuver. Typically the minor approaches are stop-controlled.
- **Unsignalized intersection** – An intersection not controlled by traffic signals.
- **Upstream** – The direction from which traffic is flowing.
- **Volume** – The number of persons or vehicles passing a point on a lane, roadway, or other traffic-way during some time interval, often one hour, expressed in vehicles, bicycles, or persons per hour.
- **Volume-to-capacity ratio** – The ratio of flow rate to capacity for a transportation facility.
- **Walkway** – A facility provided for pedestrian movement and segregated from vehicle traffic by a curb, or provide for on a separate right-of-way.

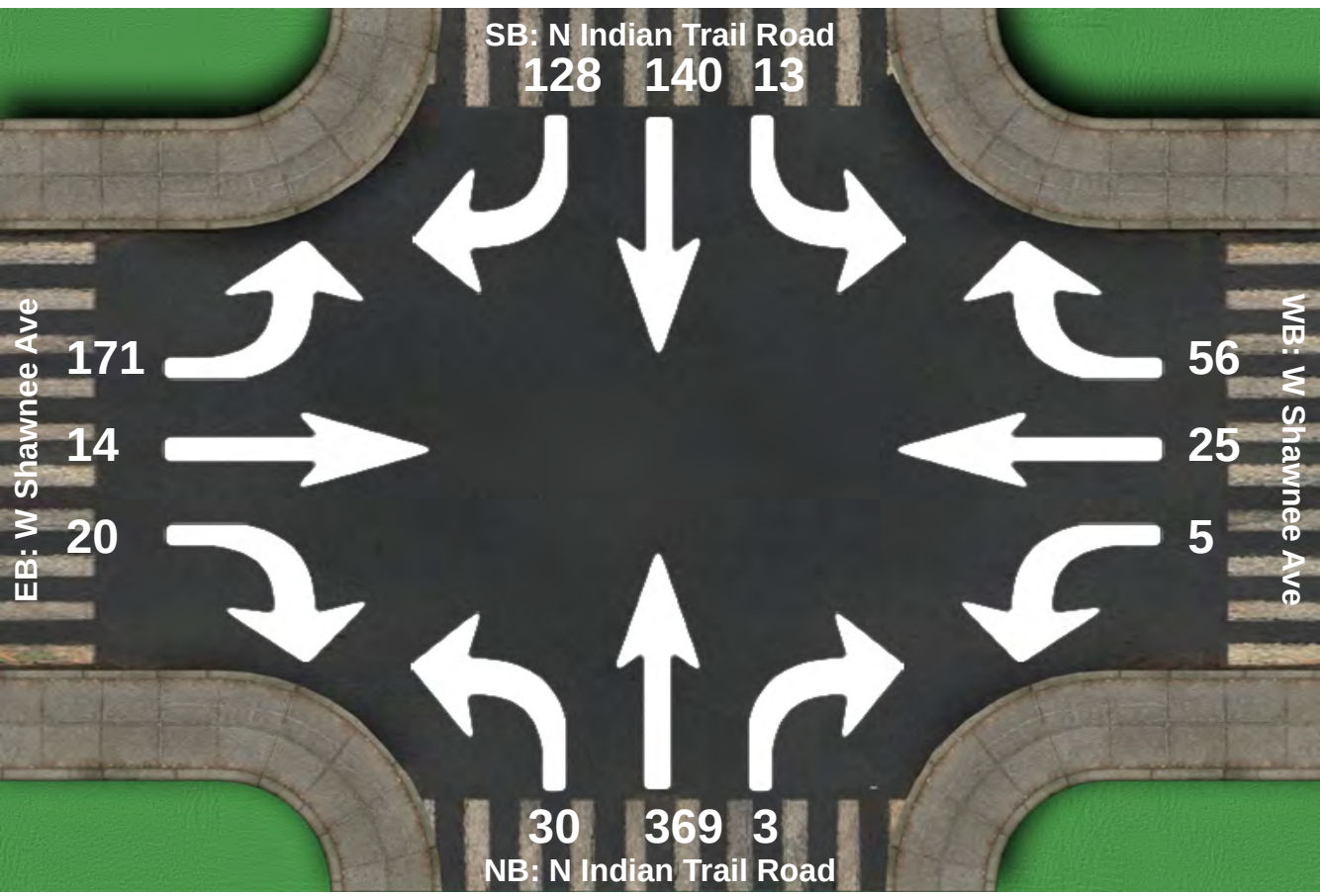
Appendix B

Summary Traffic Counts

Intersection Peak Hour

Location: N Indian Trail Road at W Shawnee Ave, Spokane, WA
GPS Coordinates:
Date: 2016-04-28
Day of week: Thursday
Weather:
Analyst: MMI

NORTH
(COUNT BOARD
REVERSED)



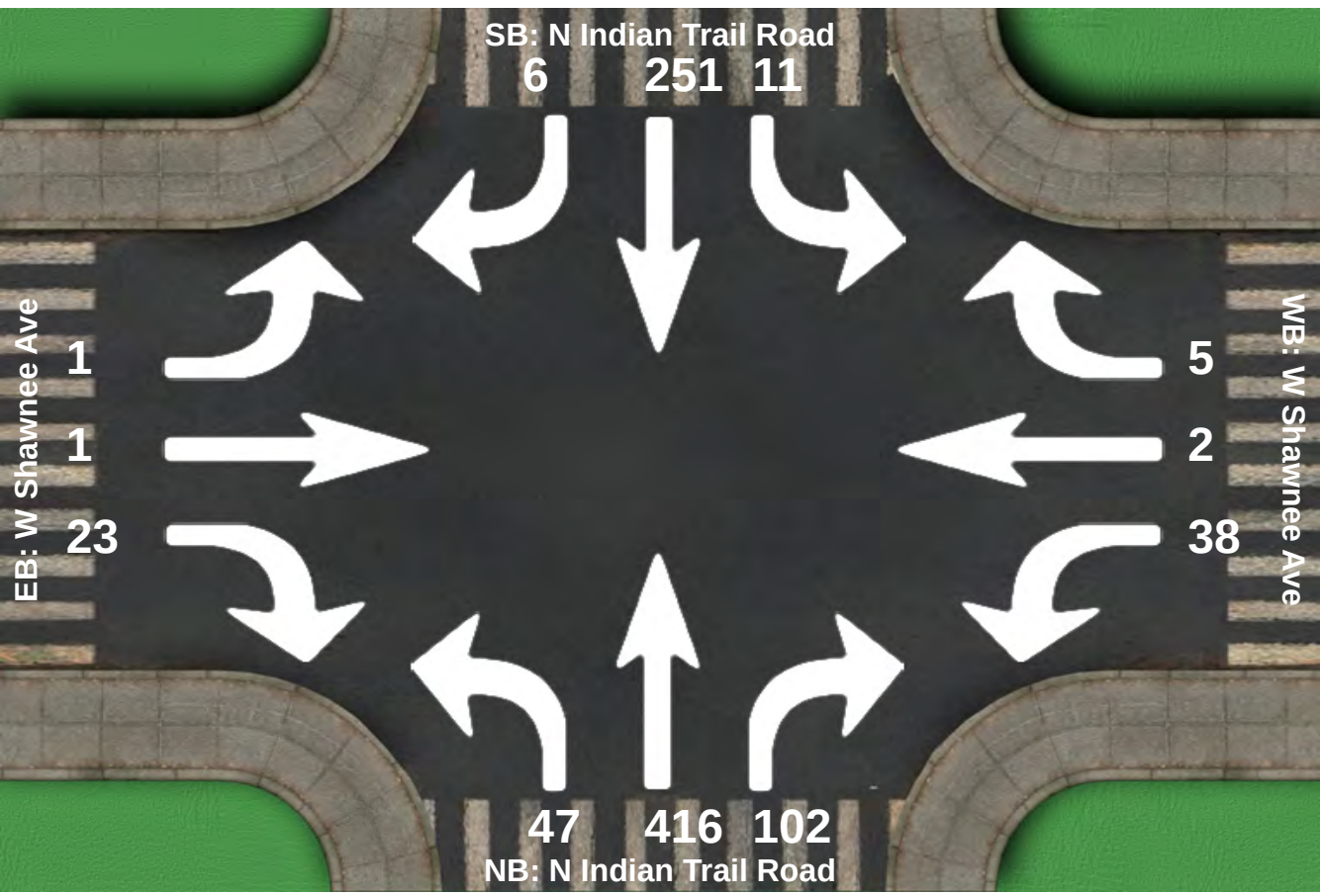
Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	13	140	128	5	25	56	30	369	3	171	14	20	974
Factor	0.65	0.71	0.71	0.62	0.37	0.74	0.75	0.81	0.75	0.59	0.44	0.62	0.73
Approach Factor	0.76			0.72			0.81			0.58			

Intersection Peak Hour

Location: N Indian Trail Road at W Shawnee Ave, Spokane, WA
GPS Coordinates:
Date: 2016-04-27
Day of week: Wednesday
Weather:
Analyst: MMI



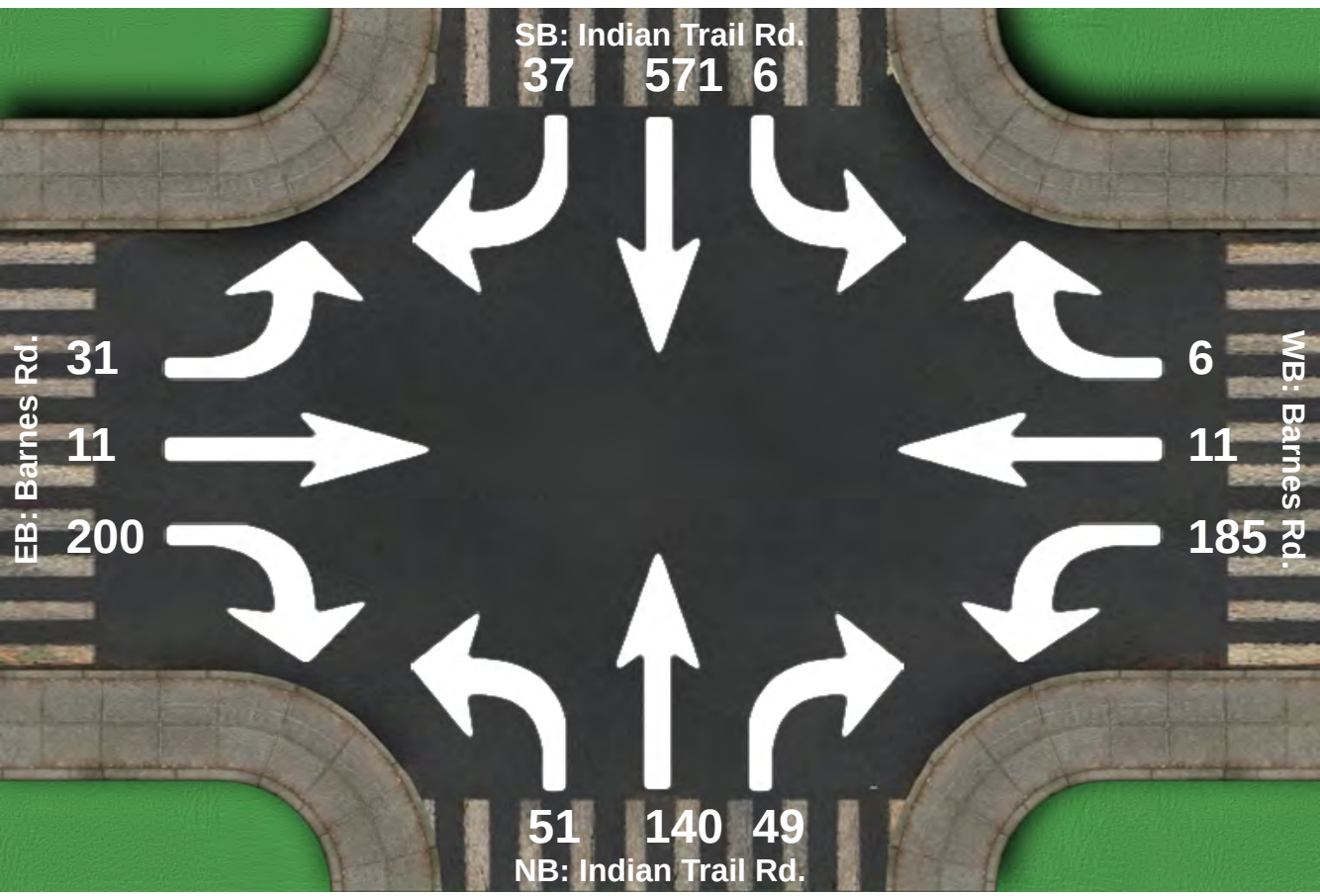
Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	11	251	6	38	2	5	47	416	102	1	1	23	903
Factor	0.55	0.92	0.50	0.79	0.50	0.42	0.69	0.94	0.82	0.25	0.25	0.57	0.93
Approach Factor	0.96			0.80			0.94			0.62			

Intersection Peak Hour

Location: Indian Trail Rd. at Barnes Rd., Spokane, WA.
GPS Coordinates:
Date: 2016-03-02
Day of week: Wednesday
Weather: Showers
Analyst: Mike McCluskey



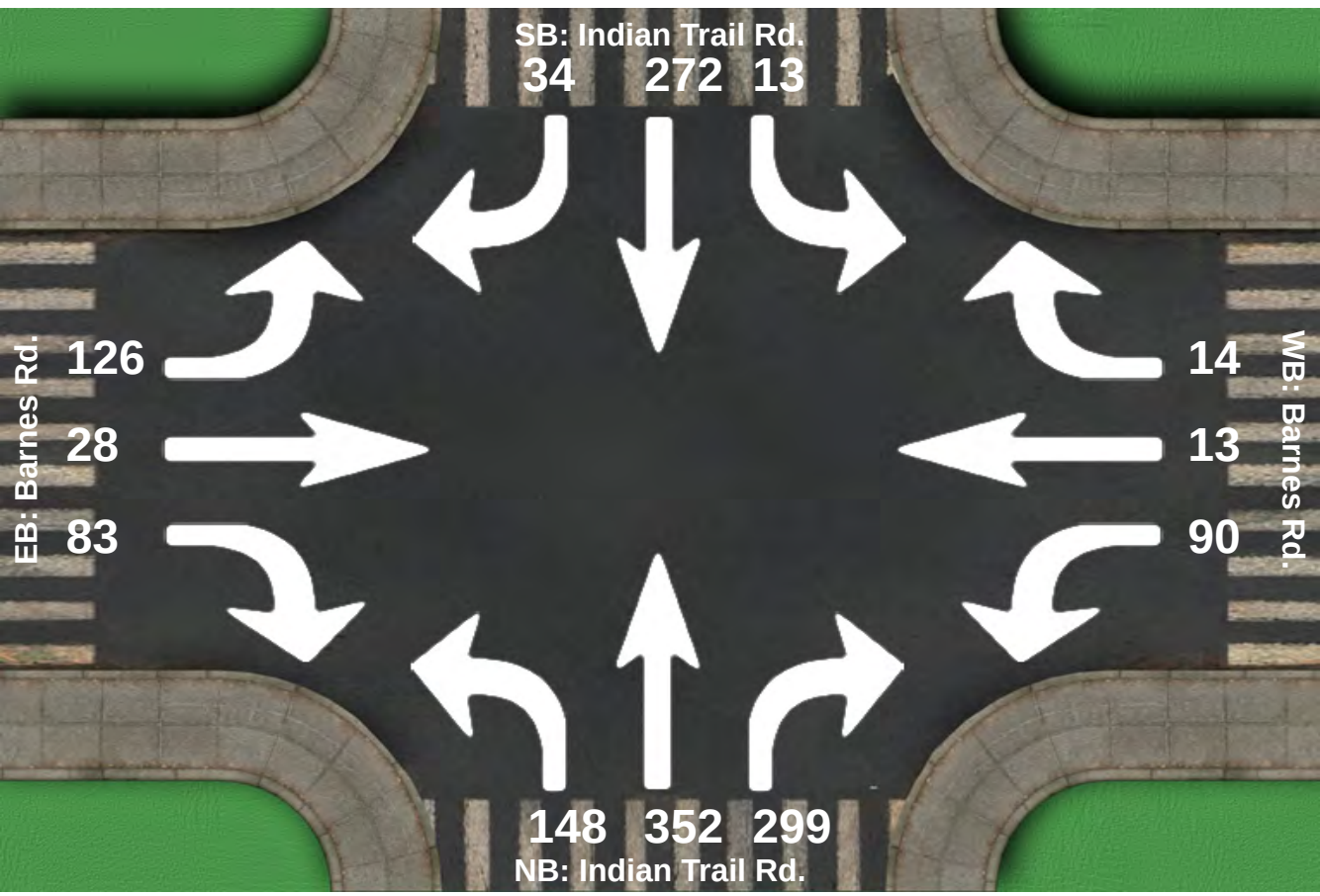
Intersection Peak Hour

07:00 - 08:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	6	571	37	185	11	6	51	140	49	31	11	200	1298
Factor	0.75	0.86	0.77	0.89	0.55	0.50	0.75	0.80	0.58	0.60	0.55	0.85	0.92
Approach Factor	0.86			0.89			0.78			0.89			

Intersection Peak Hour

Location: Indian Trail Rd. at Barnes Rd., Spokane, WA.
GPS Coordinates:
Date: 2016-03-02
Day of week: Wednesday
Weather: Cloudy
Analyst: Mike McCluskey



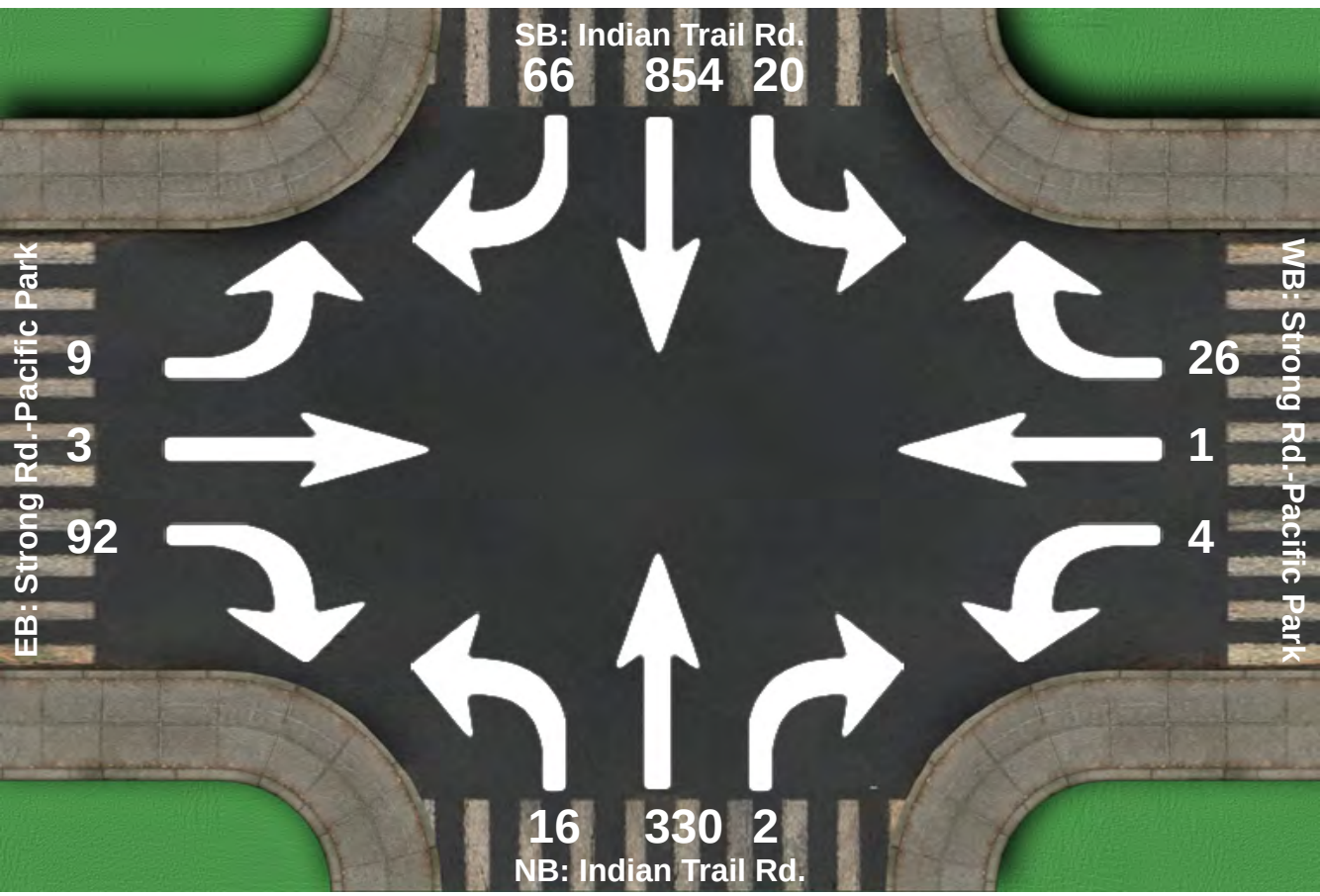
Intersection Peak Hour

17:00 - 18:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	13	272	34	90	13	14	148	352	299	126	28	83	1472
Factor	0.65	0.80	0.77	0.83	0.54	0.70	0.82	0.81	0.79	0.88	0.58	0.90	0.92
Approach Factor	0.82			0.94			0.89			0.83			

Intersection Peak Hour

Location: Indian Trail Rd. at Strong Rd.-Pacific Park, Spokane, WA.
GPS Coordinates:
Date: 2016-03-03
Day of week: Thursday
Weather: Rain
Analyst: Mike McCluskey



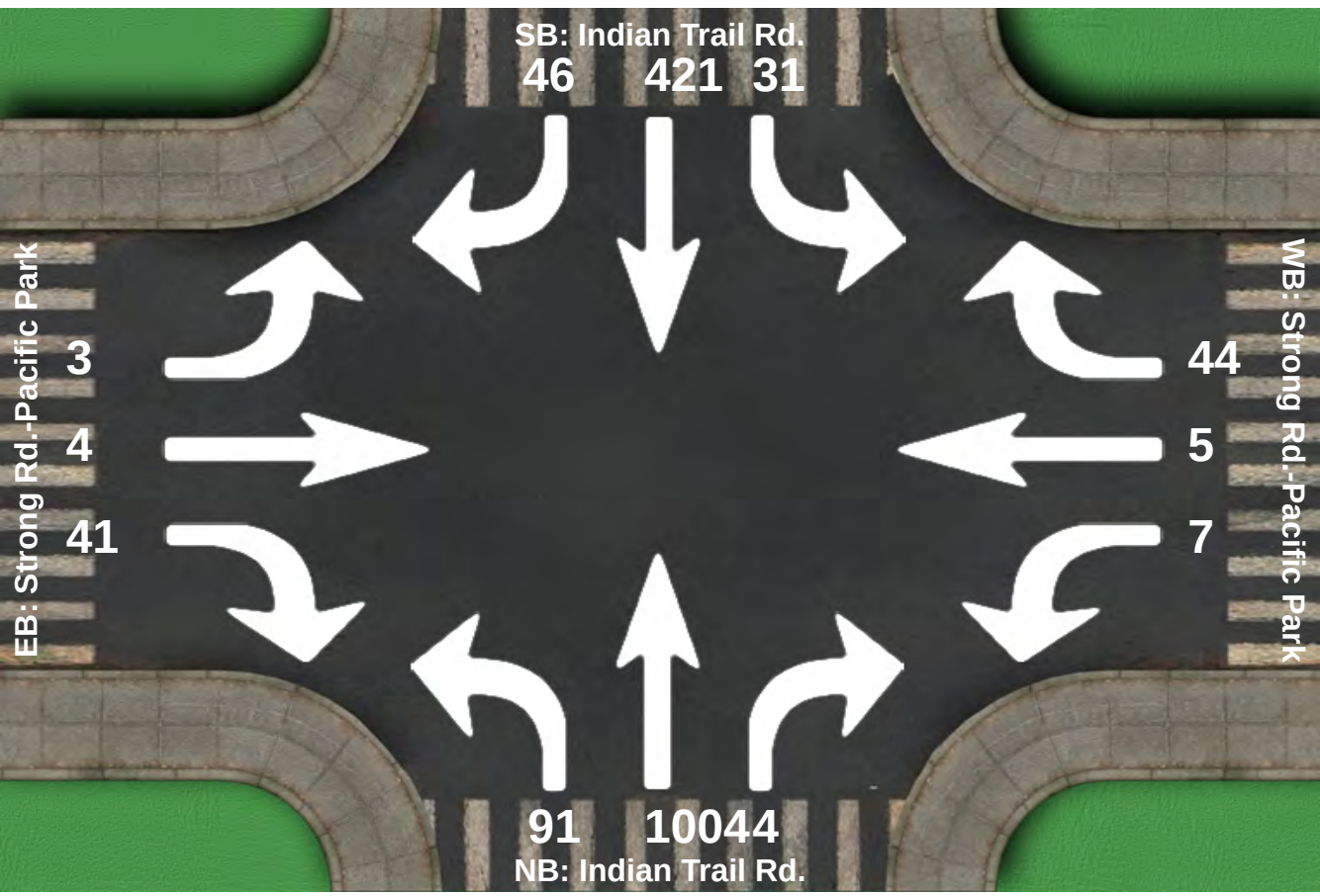
Intersection Peak Hour

07:30 - 08:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	20	854	66	4	1	26	16	330	2	9	3	92	1423
Factor	0.50	0.86	0.53	0.33	0.25	0.72	0.57	0.91	0.25	0.75	0.38	0.79	0.90
Approach Factor	0.84			0.70			0.92			0.81			

Intersection Peak Hour

Location: Indian Trail Rd. at Strong Rd.-Pacific Park, Spokane, WA.
GPS Coordinates:
Date: 2016-03-03
Day of week: Thursday
Weather: Cloudy
Analyst: Mike McCluskey



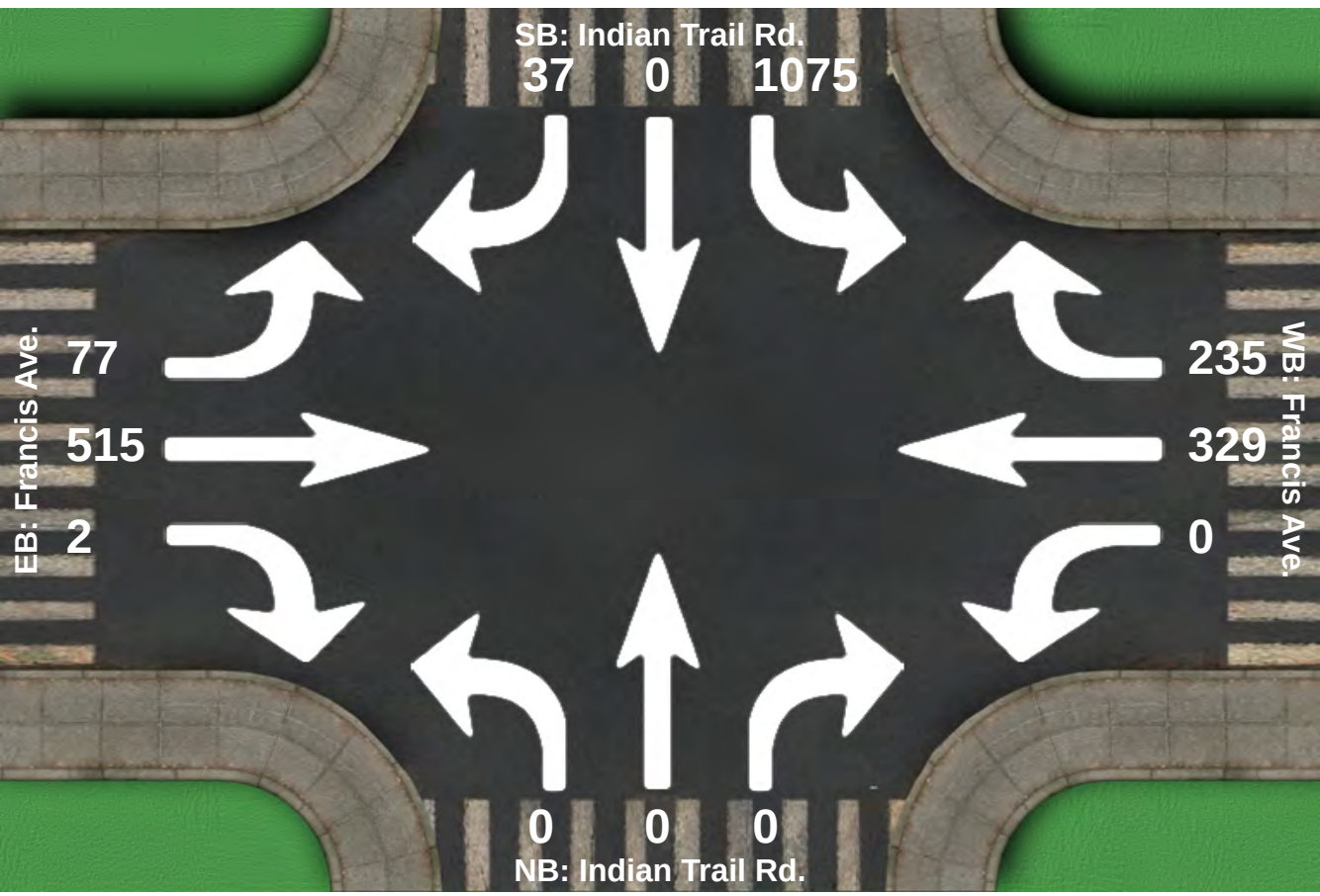
Intersection Peak Hour

17:00 - 18:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	31	421	46	7	5	44	91	1004	4	3	4	41	1701
Factor	0.77	0.92	0.77	0.58	0.42	0.73	0.84	0.87	0.50	0.25	0.50	0.68	0.94
Approach Factor	0.94			0.74			0.89			0.75			

Intersection Peak Hour

Location: Indian Trail Rd. at Francis Ave., Spokane WA.
GPS Coordinates:
Date: 2016-03-08
Day of week: Tuesday
Weather: Sunny
Analyst: Mike McCluskey



Intersection Peak Hour

07:00 - 08:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1075	0	37	0	329	235	0	0	0	77	515	2	2270
Factor	0.88	0.00	0.51	0.00	0.89	0.74	0.00	0.00	0.00	0.64	0.84	0.25	0.90
Approach Factor	0.86			0.83			0.00			0.89			

Intersection:	Indian Trail Rd/Francis Ave	Date:	3/8/2016
Project:	Windhaven	Time:	5:00 PM
City:	Spokane, WA	Analysist:	MMI

Francis Avenue	N - S Street:				Indian Trail Road							Francis Avenue
					IN	0.84	OUT					
					522	0%	1149					
						0						
					77	SBT	445					
					SBR		SBL					
	OUT	705	141	EBL				WBR	1008	1636	IN	
	0.93	0%	454	EBT				WBT	628	0.0067	0.98	
	IN	595	0	EBR				WBL	0	900	OUT	
					NBL		NBR					
E - W Street					0	NBT	1					E - W Street
	Total PHF:	0.94				0						
	Total Trucks:	0			0	100%	1					
	Total Entering:	2754			OUT	0.25	IN					
	N - S Street:				Indian Trail Road							

Total Volumes:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15	0	0	1	90	0	17	42	110	0	0	154	242	656
15 - 30	0	0	0	109	0	28	34	117	0	0	170	244	702
30 - 45	0	0	0	134	0	21	42	118	0	0	147	270	732
45 - 60	0	0	0	112	0	11	23	109	0	0	157	252	664
Total	0	0	1	445	0	77	141	454	0	0	628	1008	2754

Automobiles:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15				90		17	42	109			152	241	651
15 - 30				109		28	34	116			168	243	698
30 - 45				134		21	42	118			147	269	731
45 - 60				112		11	23	109			156	249	660
Total	0	0	0	445	0	77	141	452	0	0	623	1002	2740

Heavy Vehicles: Aproach Entered only - TM not correct

	NB Approach			SB Approach			EB Approach			WB Approach			Total
0 - 15	0		1				0	1			2	1	5
15 - 30	0		0				0	1			2	1	4
30 - 45	0		0				0	0			0	1	1
45 - 60	0		0				0	0			1	3	4
Total	0	0	1	0	0	0	0	2	0	0	5	6	14

Intersection:	Alberta St/Francis Ave	Date:	3/15/2016
Project:	Windhaven	Time:	7:15 AM
City:	Spokane, WA	Analysist:	MMI

Francis Avenue	N - S Street:				Alberta Street							Francis Avenue
					IN	0.70	OUT					
					221	0%	65					
						114						
					29	SBT	78					
					SBR		SBL					
	OUT	712	15	EBL				WBR	27	716	IN	
	0.88	1%	1036	EBT				WBT	536	0.0307	0.86	
	IN	1175	124	EBR				WBL	153	1212	OUT	
					NBL		NBR					
E - W Street					147	NBT	98					E - W Street
	Total PHF:	0.93				23						
	Total Trucks:	0			391	4%	268					
	Total Entering:	2380			OUT	0.77	IN					
	N - S Street:				Alberta Street							

Total Volumes:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15	19	2	16	24	27	7	4	286	45	33	102	10	575
15 - 30	30	7	24	29	43	7	2	298	35	32	126	7	640
30 - 45	47	4	36	14	26	10	5	254	26	47	147	3	619
45 - 60	51	10	22	11	18	5	4	198	18	41	161	7	546
Total	147	23	98	78	114	29	15	1036	124	153	536	27	2380

Automobiles:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15	17	2	15	24	26	7	4	286	45	33	98	10	567
15 - 30	30	7	24	29	43	7	2	294	35	31	120	7	629
30 - 45	42	3	36	14	26	10	5	252	26	45	144	3	606
45 - 60	48	10	22	11	18	5	4	194	18	40	156	7	533
Total	137	22	97	78	113	29	15	1026	124	149	518	27	2335

Heavy Vehicles: Aproach Entered only - TM not correct

	NB Approach			SB Approach			EB Approach			WB Approach			Total
0 - 15	2	0	1	0	1	0	0	0	0	0	4	0	8
15 - 30	0	0	0	0	0	0	0	4	0	1	6	0	11
30 - 45	5	1	0	0	0	0	0	2	0	2	3	0	13
45 - 60	3	0	0	0	0	0	0	4	0	1	5	0	13
Total	10	1	1	0	1	0	0	10	0	4	18	0	45

Intersection:	Alberta St/Francis Ave	Date:	3/15/2016
Project:	Windhaven	Time:	5:00 PM
City:	Spokane, WA	Analysist:	MMI

Francis Avenue	N - S Street:				Alberta Street							Francis Avenue
					IN	0.69	OUT					
					113	1%	159					
						49						
					25	SBT	39					
					SBR		SBL					
	OUT	1637	33	EBL				WBR	18	1399	IN	
	0.87	0%	862	EBT				WBT	1240	0.0214	0.97	
	IN	972	77	EBR				WBL	141	1025	OUT	
					NBL		NBR					
E - W Street					372	NBT	124					E - W Street
	Total PHF:	0.96				108						
	Total Trucks:	0			267	0%	604					
	Total Entering:	3088			OUT	0.95	IN					
	N - S Street:				Alberta Street							

Total Volumes:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15	96	28	27	6	8	7	6	206	12	30	313	7	746
15 - 30	88	29	40	11	14	7	10	207	18	39	298	4	765
30 - 45	85	28	24	16	21	4	5	206	22	34	326	2	773
45 - 60	103	23	33	6	6	7	12	243	25	38	303	5	804
Total	372	108	124	39	49	25	33	862	77	141	1240	18	3088

Automobiles:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15	96	28	27	6	8	6	6	206	12	30	303	7	735
15 - 30	87	29	40	11	14	7	10	207	18	39	295	4	761
30 - 45	84	28	24	16	21	4	5	206	22	34	317	2	763
45 - 60	102	23	33	6	6	7	12	243	25	38	295	5	795
Total	369	108	124	39	49	24	33	862	77	141	1210	18	3054

Heavy Vehicles: Aproach Entered only - TM not correct

	NB Approach			SB Approach			EB Approach			WB Approach			Total
0 - 15	0		0			1		0			10		11
15 - 30	1		0			0		0			3		4
30 - 45	1		0			0		0			9		10
45 - 60	1		0			0		0			8		9
Total	3	0	0	0	0	1	0	0	0	0	30	0	34

Intersection:	Ash St/Francis Ave	Date:	3/10/2016
Project:	Windhaven	Time:	7:15 AM
City:	Spokane, WA	Analysist:	MMI

Francis Avenue	N - S Street:				Ash Street							Francis Avenue
					IN	0.95	OUT					
					1374	3%	0					
						673						
					393	SBT	308					
					SBR		SBL					
	OUT	895	0	EBL				WBR	0	610	IN	
	0.87	1%	1053	EBT				WBT	502	0.0656	0.83	
	IN	1234	181	EBR				WBL	108	1361	OUT	
					NBL		NBR					
E - W Street					0	NBT	0					E - W Street
	Total PHF:	0.93				0						
	Total Trucks:	0			962	#DIV/0!	0					
	Total Entering:	3218			OUT	#DIV/0!	IN					
	N - S Street:				Ash Street							

Total Volumes:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15	0	0	0	86	185	88	0	260	50	24	99	0	792
15 - 30	0	0	0	92	171	98	0	299	56	23	130	0	869
30 - 45	0	0	0	63	172	88	0	293	37	34	150	0	837
45 - 60	0	0	0	67	145	119	0	201	38	27	123	0	720
Total	0	0	0	308	673	393	0	1053	181	108	502	0	3218

Automobiles:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15				84	183	86		258	50	24	89		774
15 - 30				89	165	96		295	53	20	124		842
30 - 45				60	159	86		292	37	34	141		809
45 - 60				65	142	117		201	38	27	111		701
Total	0	0	0	298	649	385	0	1046	178	105	465	0	3126

Heavy Vehicles: Aproach Entered only - TM not correct

	NB Approach			SB Approach			EB Approach			WB Approach			Total
0 - 15				2	2	2		2	0	0	10		18
15 - 30				3	6	2		4	3	3	6		27
30 - 45				3	13	2		1	0	0	9		28
45 - 60				2	3	2		0	0	0	12		19
Total	0	0	0	10	24	8	0	7	3	3	37	0	92

Intersection:	Ash St/Francis Ave	Date:	3/10/2016
Project:	Windhaven	Time:	5:00 PM
City:	Spokane, WA	Analysist:	MMI

Francis Avenue	N - S Street:				Ash Street							Francis Avenue
					IN	0.94	OUT					
					1140	4%	0					
						562						
					362	SBT	216					
					SBR		SBL					
	OUT	1666	0	EBL				WBR	0	1523	IN	
	0.98	1%	961	EBT				WBT	1304	0.0492	0.96	
	IN	1054	93	EBR				WBL	219	1177	OUT	
					NBL		NBR					
E - W Street					0	NBT	0					E - W Street
	Total PHF:	0.98				0						
	Total Trucks:	0			874	#DIV/0!	0					
	Total Entering:	3717			OUT	#DIV/0!	IN					
	N - S Street:				Ash Street							

Total Volumes:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15	0	0	0	53	144	85	0	238	17	62	333	0	932
15 - 30	0	0	0	56	145	102	0	246	24	54	311	0	938
30 - 45	0	0	0	66	143	85	0	244	26	46	339	0	949
45 - 60	0	0	0	41	130	90	0	233	26	57	321	0	898
Total	0	0	0	216	562	362	0	961	93	219	1304	0	3717

Automobiles:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15				53	136	83		238	15	62	314		901
15 - 30				55	132	102		246	24	54	271		884
30 - 45				63	131	84		244	25	44	333		924
45 - 60				41	126	89		232	24	57	313		882
Total	0	0	0	212	525	358	0	960	88	217	1231	0	3591

Heavy Vehicles: Aproach Entered only - TM not correct

	NB Approach			SB Approach			EB Approach			WB Approach			Total
0 - 15				0	8	2		0	2	0	19		31
15 - 30				1	13	0		0	0	0	40		54
30 - 45				3	12	1		0	1	2	6		25
45 - 60				0	4	1		1	2	0	8		16
Total	0	0	0	4	37	4	0	1	5	2	73	0	126

Intersection:	Maple St/Francis Ave	Date:	3/9/2016
Project:	Windhaven	Time:	7:15 AM
City:	Spokane, WA	Analysist:	MMI

Francis Avenue	N - S Street:				Maple Street							Francis Avenue
					IN	#DIV/0!	OUT					
					0	#DIV/0!	788					
						0						
					0	SBT	0					
					SBR		SBL					
	OUT	510	235	EBL				WBR	78	582	IN	
	0.88	1%	1089	EBT				WBT	504	0.0275	0.87	
	IN	1324	0	EBR				WBL	0	1234	OUT	
					NBL		NBR					
E - W Street					6	NBT	145					E - W Street
	Total PHF:	0.93				475						
	Total Trucks:	0			0	4%	626					
	Total Entering:	2532			OUT	0.97	IN					
	N - S Street:				Maple Street							

Total Volumes:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15	2	120	33	0	0	0	40	293	0	0	117	17	622
15 - 30	2	122	34	0	0	0	70	308	0	0	110	14	660
30 - 45	0	118	44	0	0	0	69	283	0	0	141	26	681
45 - 60	2	115	34	0	0	0	56	205	0	0	136	21	569
Total	6	475	145	0	0	0	235	1089	0	0	504	78	2532

Automobiles:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15		118	32				39	290			114	14	607
15 - 30		116	33				69	306			106	13	643
30 - 45		116	43				68	278			141	23	669
45 - 60		115	31				56	203			135	20	560
Total	0	465	139	0	0	0	232	1077	0	0	496	70	2479

Heavy Vehicles: Aproach Entered only - TM not correct

	NB Approach			SB Approach			EB Approach			WB Approach			Total
0 - 15	2	2	1				1	3			3	3	15
15 - 30	2	6	1				1	2			4	1	17
30 - 45	0	2	1				1	5			0	3	12
45 - 60	2	0	3				0	2			1	1	9
Total	6	10	6	0	0	0	3	12	0	0	8	8	53

Intersection:	Maple St/Francis Ave	Date:	3/9/2016
Project:	Windhaven	Time:	5:00 PM
City:	Spokane, WA	Analysist:	MMI

Francis Avenue	N - S Street:				Maple Street							Francis Avenue
					IN	#DIV/0!	OUT					
					0	#DIV/0!	1378					
						0						
					0	SBT	0					
					SBR		SBL					
	OUT	1501	308	EBL				WBR	207	1362	IN	
	0.96	1%	879	EBT				WBT	1155	0.0338	0.96	
	IN	1187	0	EBR				WBL	0	1044	OUT	
					NBL		NBR					
E - W Street					346	NBT	165					E - W Street
	Total PHF:	0.97				863						
	Total Trucks:	0			0	0%	1374					
	Total Entering:	3923			OUT	0.95	IN					
	N - S Street:				Maple Street							

Total Volumes:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15	83	202	35	0	0	0	72	222	0	0	295	48	957
15 - 30	81	221	50	0	0	0	80	228	0	0	297	58	1015
30 - 45	96	231	36	0	0	0	83	221	0	0	284	49	1000
45 - 60	86	209	44	0	0	0	73	208	0	0	279	52	951
Total	346	863	165	0	0	0	308	879	0	0	1155	207	3923

Automobiles:

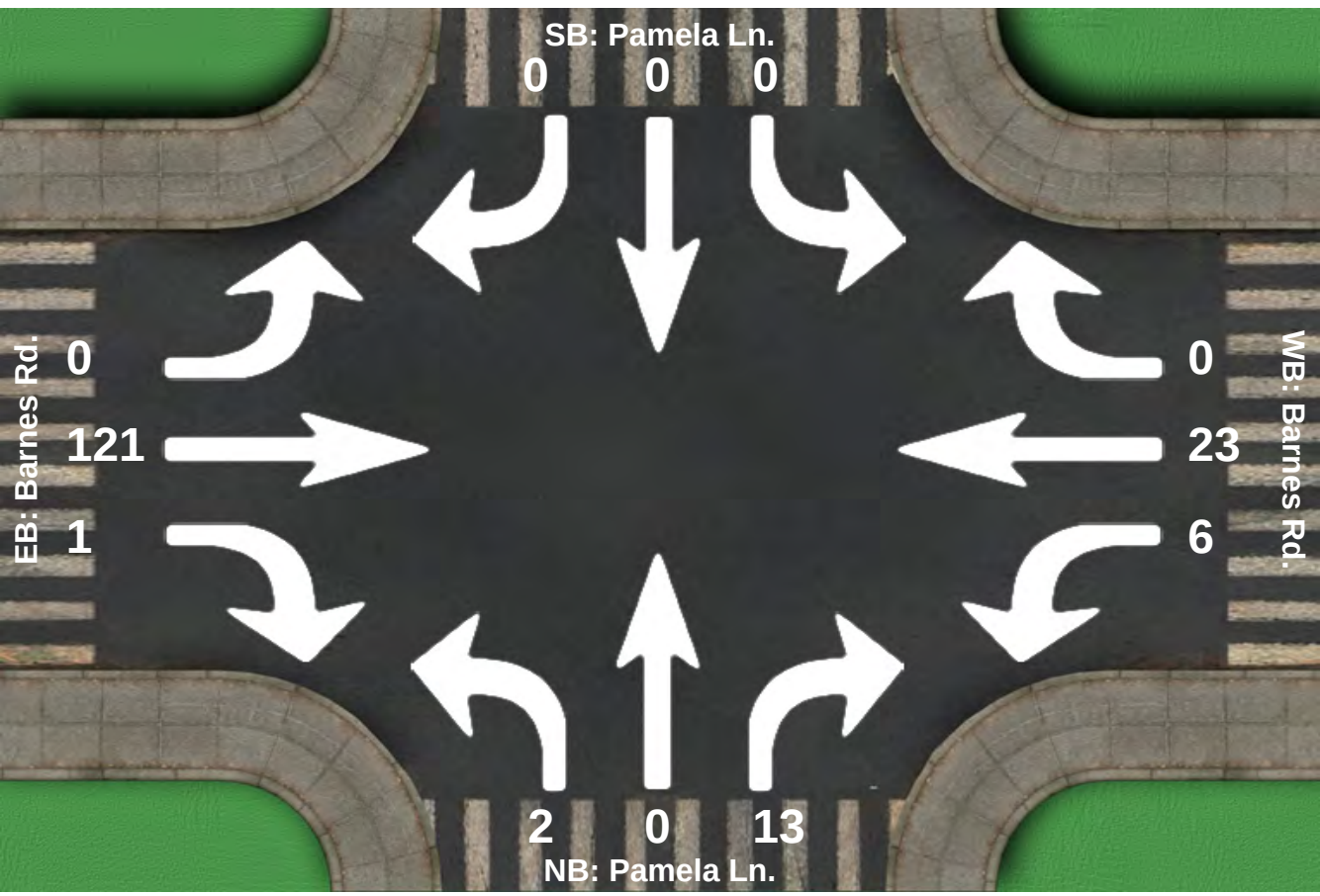
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total
0 - 15	83	202	34				71	221			288	45	944
15 - 30	81	221	50				79	228			285	56	1000
30 - 45	96	230	36				83	221			274	48	988
45 - 60	86	208	44				71	205			270	50	934
Total	346	861	164	0	0	0	304	875	0	0	1117	199	3866

Heavy Vehicles: Aproach Entered only - TM not correct

	NB Approach			SB Approach			EB Approach			WB Approach			Total
0 - 15	0	0	1				1	1			7	3	13
15 - 30	0	0	0				1	0			12	2	15
30 - 45	0	1	0				0	0			10	1	12
45 - 60	0	1	0				2	3			9	2	17
Total	0	2	1	0	0	0	4	4	0	0	38	8	57

Intersection Peak Hour

Location: Pamela Ln. at Barnes Rd., Spokane, WA.
GPS Coordinates:
Date: 2016-03-01
Day of week: Tuesday
Weather: Clear
Analyst: Mike McCluskey



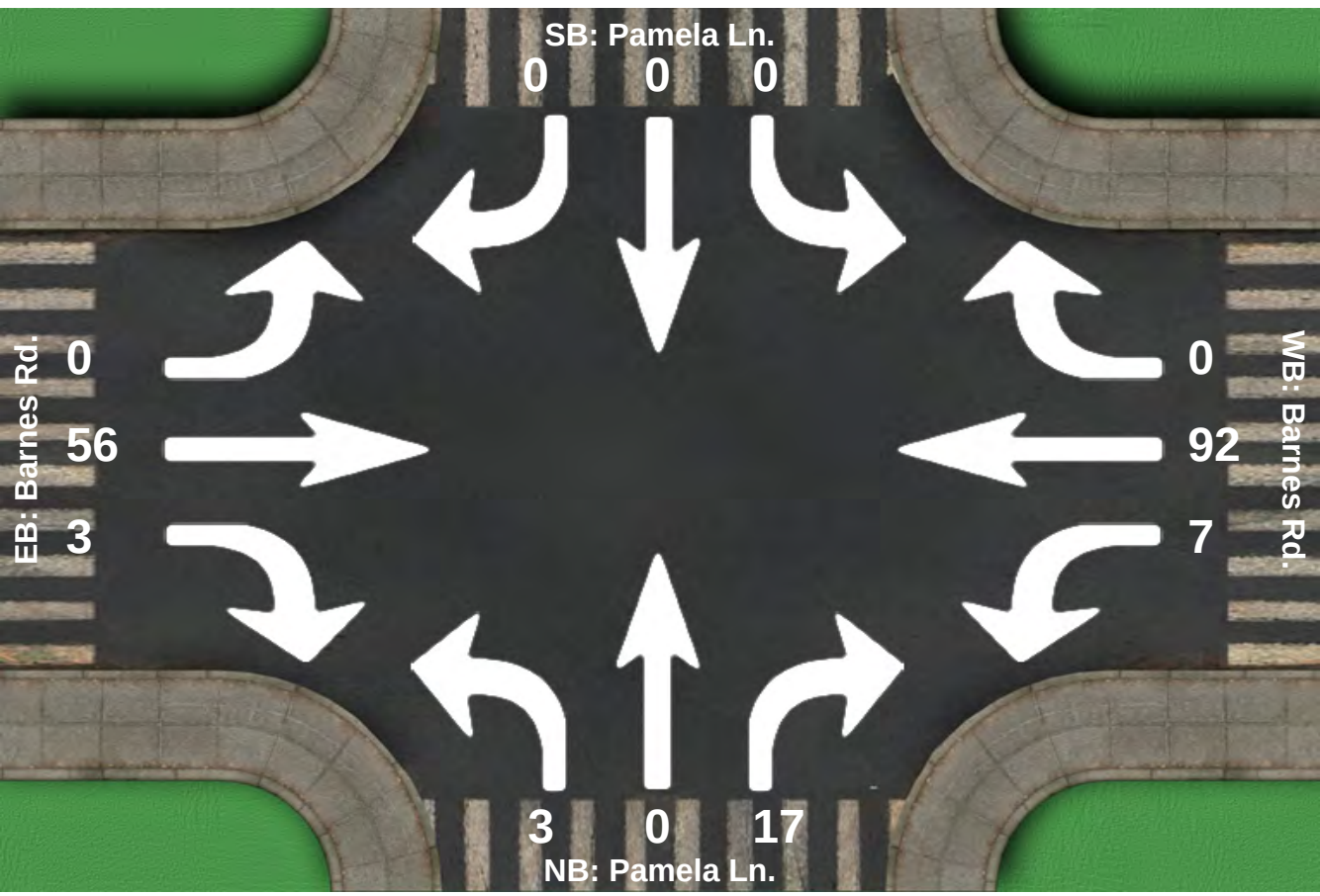
Intersection Peak Hour

07:00 - 08:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	6	23	0	2	0	13	0	121	1	166
Factor	0.00	0.00	0.00	0.38	0.64	0.00	0.50	0.00	0.81	0.00	0.70	0.25	0.74
Approach Factor	0.00			0.66			0.94			0.71			

Intersection Peak Hour

Location: Pamela Ln. at Barnes Rd., Spokane, WA.
GPS Coordinates:
Date: 2016-03-01
Day of week: Tuesday
Weather: Rain
Analyst: Mike McCluskey



Intersection Peak Hour

17:00 - 18:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	7	92	0	3	0	17	0	56	3	178
Factor	0.00	0.00	0.00	0.44	0.77	0.00	0.38	0.00	0.71	0.00	0.88	0.38	0.95
Approach Factor	0.00			0.82			0.83			0.82			

Appendix C

LOS Summary Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	25	56	171	14	20	13	140	128	30	363	3
Future Volume (veh/h)	5	25	56	171	14	20	13	140	128	30	363	3
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1800	1800	1748	1800	1800	1800	1800	1872	1800	1782	1872
Adj Flow Rate, veh/h	7	34	77	234	19	27	18	192	175	41	497	4
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	0	0	0	3	0	0	0	0	0	0	1	0
Cap, veh/h	418	126	286	348	174	247	480	945	835	659	966	862
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.03	0.52	0.52	0.05	0.54	0.54
Sat Flow, veh/h	1369	488	1105	1255	670	952	1714	1800	1591	1714	1782	1591
Grp Volume(v), veh/h	7	0	111	234	0	46	18	192	175	41	497	4
Grp Sat Flow(s),veh/h/ln	1369	0	1592	1255	0	1621	1714	1800	1591	1714	1782	1591
Q Serve(g_s), s	0.3	0.0	4.3	14.2	0.0	1.7	0.4	4.4	4.6	0.8	13.8	0.1
Cycle Q Clear(g_c), s	2.0	0.0	4.3	18.6	0.0	1.7	0.4	4.4	4.6	0.8	13.8	0.1
Prop In Lane	1.00		0.69	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	418	0	413	348	0	420	480	945	835	659	966	862
V/C Ratio(X)	0.02	0.00	0.27	0.67	0.00	0.11	0.04	0.20	0.21	0.06	0.51	0.00
Avail Cap(c_a), veh/h	418	0	413	348	0	420	664	945	835	815	966	862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	23.0	30.4	0.0	22.1	8.7	9.9	9.9	7.4	11.3	8.2
Incr Delay (d2), s/veh	0.0	0.0	0.3	5.0	0.0	0.1	0.0	0.5	0.6	0.0	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.0	5.4	0.0	0.8	0.2	2.3	2.1	0.4	7.3	0.0
LnGrp Delay(d),s/veh	22.8	0.0	23.4	35.4	0.0	22.2	8.8	10.3	10.5	7.4	13.3	8.2
LnGrp LOS	C		C	D		C	A	B	B	A	B	A
Approach Vol, veh/h		118			280			385			542	
Approach Delay, s/veh		23.4			33.2			10.3			12.8	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.9	45.0		25.0	6.6	46.3		25.0
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.8	6.6		20.6	2.4	15.8		6.3
Green Ext Time (p_c), s	0.0	6.4		0.0	0.0	5.9		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	11	200	185	11	6	51	140	49	6	571	37
Future Volume (veh/h)	31	11	200	185	11	6	51	140	49	6	571	37
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1652	1685	1543	1605	1543	1543	1543	1620
Adj Flow Rate, veh/h	34	12	217	201	12	7	55	152	53	7	621	40
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	457	349	294	545	306	179	314	611	499	476	951	61
Arrive On Green	0.04	0.22	0.22	0.14	0.31	0.30	0.06	0.38	0.38	0.02	0.34	0.34
Sat Flow, veh/h	1513	1588	1341	1513	978	570	1469	1605	1310	1469	2796	180
Grp Volume(v), veh/h	34	12	217	201	0	19	55	152	53	7	325	336
Grp Sat Flow(s),veh/h/ln	1513	1588	1341	1513	0	1548	1469	1605	1310	1469	1466	1510
Q Serve(g_s), s	1.0	0.4	9.2	5.7	0.0	0.5	1.4	4.0	1.6	0.2	11.5	11.6
Cycle Q Clear(g_c), s	1.0	0.4	9.2	5.7	0.0	0.5	1.4	4.0	1.6	0.2	11.5	11.6
Prop In Lane	1.00		1.00	1.00		0.37	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	457	349	294	545	0	485	314	611	499	476	499	514
V/C Ratio(X)	0.07	0.03	0.74	0.37	0.00	0.04	0.18	0.25	0.11	0.01	0.65	0.65
Avail Cap(c_a), veh/h	797	674	569	745	0	657	625	1074	877	846	981	1010
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	18.8	22.3	13.2	0.0	14.7	11.9	13.0	12.2	12.5	17.1	17.1
Incr Delay (d2), s/veh	0.1	0.0	3.6	0.4	0.0	0.0	0.3	0.3	0.1	0.0	2.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	3.7	2.4	0.0	0.2	0.6	1.8	0.6	0.1	4.9	5.0
LnGrp Delay(d),s/veh	17.1	18.8	25.9	13.6	0.0	14.7	12.2	13.3	12.4	12.5	19.2	19.2
LnGrp LOS	B	B	C	B		B	B	B	B	B	B	B
Approach Vol, veh/h		263			220			260			668	
Approach Delay, s/veh		24.4			13.7			12.9			19.1	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.6	27.3	6.2	23.2	7.0	24.8	11.9	17.5
Change Period (Y+Rc), s	4.0	4.9	4.0	4.5	4.0	4.9	4.0	4.5
Max Green Setting (Gmax), s	16.0	40.1	16.0	25.5	16.0	40.1	16.0	25.5
Max Q Clear Time (g_c+I1), s	2.2	6.0	3.0	2.5	3.4	13.6	7.7	11.2
Green Ext Time (p_c), s	0.0	6.1	0.0	1.1	0.1	5.8	0.5	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	3	92	4	1	26	16	330	2	20	854	66
Future Volume (veh/h)	9	3	92	4	1	26	16	330	2	20	854	66
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1765	1765	1800	1765	1765	1714	1714	1714	1714	1714	1714
Adj Flow Rate, veh/h	10	3	102	4	1	29	18	367	2	22	949	73
Adj No. of Lanes	0	1	1	0	1	1	1	1	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	278	66	223	280	55	221	309	1187	1007	739	1187	1006
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.69	0.69	0.69	0.69	0.69	0.69
Sat Flow, veh/h	1017	446	1500	1014	372	1486	534	1714	1455	979	1714	1453
Grp Volume(v), veh/h	13	0	102	5	0	29	18	367	2	22	949	73
Grp Sat Flow(s),veh/h/ln	1463	0	1500	1385	0	1486	534	1714	1455	979	1714	1453
Q Serve(g_s), s	0.0	0.0	3.1	0.0	0.0	0.9	1.2	4.2	0.0	0.5	19.2	0.8
Cycle Q Clear(g_c), s	0.3	0.0	3.1	0.1	0.0	0.9	20.4	4.2	0.0	4.7	19.2	0.8
Prop In Lane	0.77		1.00	0.80		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	344	0	223	335	0	221	309	1187	1007	739	1187	1006
V/C Ratio(X)	0.04	0.00	0.46	0.01	0.00	0.13	0.06	0.31	0.00	0.03	0.80	0.07
Avail Cap(c_a), veh/h	875	0	777	837	0	770	323	1230	1044	764	1230	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	0.0	19.5	18.3	0.0	18.6	12.4	3.0	2.4	3.9	5.3	2.5
Incr Delay (d2), s/veh	0.0	0.0	1.5	0.0	0.0	0.3	0.4	0.7	0.0	0.1	5.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.4	0.1	0.0	0.4	0.2	2.2	0.0	0.1	10.6	0.4
LnGrp Delay(d),s/veh	18.4	0.0	21.0	18.3	0.0	18.8	12.7	3.7	2.4	4.0	11.0	2.6
LnGrp LOS	B		C	B		B	B	A	A	A	B	A
Approach Vol, veh/h		115			34			387			1044	
Approach Delay, s/veh		20.7			18.7			4.1			10.3	
Approach LOS		C			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		38.7		11.5		38.7		11.5
Change Period (Y+Rc), s		4.9		* 4.2		4.9		* 4.2
Max Green Setting (Gmax), s		35.1		* 26		35.1		* 26
Max Q Clear Time (g_c+I1), s		22.4		2.9		21.2		5.1
Green Ext Time (p_c), s		11.5		0.6		12.5		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	77	517	329	235	1111	38
Future Volume (veh/h)	77	517	329	235	1111	38
Number	1	6	2	12	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.99	1.00	1.00
Adj Sat Flow, veh/h/ln	1714	1714	1714	1714	1714	1800
Adj Flow Rate, veh/h	86	574	366	0	1234	0
Adj No. of Lanes	1	2	2	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	5	5	5	5	5	0
Cap, veh/h	422	1154	1154	512	1546	695
Arrive On Green	0.35	0.35	0.35	0.00	0.47	0.00
Sat Flow, veh/h	981	3343	3343	1445	3265	1530
Grp Volume(v), veh/h	86	574	366	0	1234	0
Grp Sat Flow(s),veh/h/ln	981	1629	1629	1445	1633	1530
Q Serve(g_s), s	3.2	6.4	3.8	0.0	14.9	0.0
Cycle Q Clear(g_c), s	7.0	6.4	3.8	0.0	14.9	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	422	1154	1154	512	1546	695
V/C Ratio(X)	0.20	0.50	0.32	0.00	0.80	0.00
Avail Cap(c_a), veh/h	835	2524	2524	1120	1828	827
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	13.5	11.8	10.9	0.0	10.4	0.0
Incr Delay (d2), s/veh	0.3	0.4	0.2	0.0	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.9	1.7	0.0	7.0	0.0
LnGrp Delay(d),s/veh	13.8	12.2	11.1	0.0	12.6	0.0
LnGrp LOS	B	B	B		B	
Approach Vol, veh/h		660	366		1234	
Approach Delay, s/veh		12.4	11.1		12.6	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		20.5				20.5		26.0
Change Period (Y+Rc), s		4.9				4.9		4.9
Max Green Setting (Gmax), s		35.1				35.1		25.1
Max Q Clear Time (g_c+I1), s		5.8				9.0		16.9
Green Ext Time (p_c), s		6.7				6.5		4.2

Intersection Summary	
HCM 2010 Ctrl Delay	12.3
HCM 2010 LOS	B

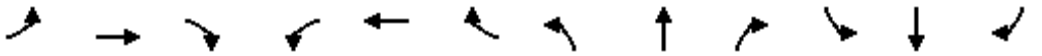
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1246	149	153	536	27	147	23	98	78	114	29
Future Volume (veh/h)	18	1246	149	153	536	27	147	23	98	78	114	29
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1767	1800	1731	1800	1800	1800	1832	1872	1800	1872	1872
Adj Flow Rate, veh/h	19	1340	160	165	576	29	144	45	105	84	123	31
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	4	0	0	0	0	0	0	0	0
Cap, veh/h	494	1425	169	240	1681	85	258	72	168	237	198	50
Arrive On Green	0.06	0.47	0.46	0.10	0.51	0.50	0.15	0.15	0.13	0.14	0.14	0.12
Sat Flow, veh/h	1714	3022	359	1648	3314	167	1714	479	1117	1714	1433	361
Grp Volume(v), veh/h	19	741	759	165	297	308	144	0	150	84	0	154
Grp Sat Flow(s),veh/h/ln	1714	1678	1702	1648	1710	1770	1714	0	1595	1714	0	1794
Q Serve(g_s), s	0.6	43.3	44.1	4.9	10.7	10.8	8.1	0.0	9.2	4.6	0.0	8.4
Cycle Q Clear(g_c), s	0.6	43.3	44.1	4.9	10.7	10.8	8.1	0.0	9.2	4.6	0.0	8.4
Prop In Lane	1.00		0.21	1.00		0.09	1.00		0.70	1.00		0.20
Lane Grp Cap(c), veh/h	494	791	803	240	867	898	258	0	240	237	0	248
V/C Ratio(X)	0.04	0.94	0.95	0.69	0.34	0.34	0.56	0.00	0.62	0.35	0.00	0.62
Avail Cap(c_a), veh/h	576	816	828	256	867	898	445	0	414	362	0	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	25.9	26.3	22.1	15.2	15.3	40.8	0.0	41.9	40.4	0.0	42.2
Incr Delay (d2), s/veh	0.0	17.2	18.8	5.6	0.1	0.1	0.7	0.0	1.0	0.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	23.7	24.9	2.6	5.1	5.2	3.9	0.0	4.1	2.2	0.0	4.2
LnGrp Delay(d),s/veh	12.5	43.1	45.0	27.7	15.3	15.3	41.5	0.0	42.9	40.8	0.0	43.2
LnGrp LOS	B	D	D	C	B	B	D		D	D		D
Approach Vol, veh/h		1519			770			294			238	
Approach Delay, s/veh		43.7			18.0			42.2			42.3	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	57.5		18.7	14.0	53.5		17.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	11.0	49.0		25.0	11.0	49.0		20.0
Max Q Clear Time (g_c+I1), s	2.6	12.8		11.2	6.9	46.1		10.4
Green Ext Time (p_c), s	0.0	6.3		0.8	0.1	1.3		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	36.4
HCM 2010 LOS	D

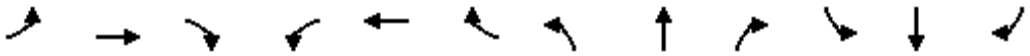
Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	855	181	108	502	0	0	0	0	308	673	393
Future Volume (vph)	0	855	181	108	502	0	0	0	0	308	673	393
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	11	12	12	12	12	12	13	12	13
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3175		1605	3353					1716	3307	1523
Flt Permitted		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3175		1605	3353					1716	3307	1523
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	919	195	116	540	0	0	0	0	331	724	423
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	0	198
Lane Group Flow (vph)	0	1096	0	116	540	0	0	0	0	331	724	225
Confl. Peds. (#/hr)			3	3					1			4
Heavy Vehicles (%)	0%	4%	5%	3%	2%	0%	2%	2%	2%	3%	3%	2%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	2	0
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		5		6	2						4	
Permitted Phases										4		4
Actuated Green, G (s)		38.0		9.1	52.0					28.5	28.5	28.5
Effective Green, g (s)		38.9		10.0	52.9					29.1	29.1	29.1
Actuated g/C Ratio		0.43		0.11	0.59					0.32	0.32	0.32
Clearance Time (s)		4.9		4.9	4.9					4.6	4.6	4.6
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1372		178	1970					554	1069	492
v/s Ratio Prot		c0.35		c0.07	0.16						c0.22	
v/s Ratio Perm										0.19		0.15
v/c Ratio		0.80		0.65	0.27					0.60	0.68	0.46
Uniform Delay, d1		22.2		38.3	9.1					25.5	26.4	24.2
Progression Factor		1.00		0.94	0.39					0.85	0.86	0.94
Incremental Delay, d2		4.9		6.2	0.3					1.6	1.6	0.6
Delay (s)		27.1		42.2	3.9					23.3	24.4	23.3
Level of Service		C		D	A					C	C	C
Approach Delay (s)		27.1			10.7			0.0			23.8	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	1089	0	0	396	78	6	475	145	0	0	0
Future Volume (vph)	235	1089	0	0	396	78	6	475	145	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0				
Lane Util. Factor	1.00	0.95			0.95		0.86	0.86				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.98		1.00	0.96				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1621	3288			3260		1454	4412				
Flt Permitted	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	1621	3288			3260		1454	4412				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	253	1171	0	0	426	84	6	511	156	0	0	0
RTOR Reduction (vph)	0	0	0	0	16	0	0	66	0	0	0	0
Lane Group Flow (vph)	253	1171	0	0	494	0	5	602	0	0	0	0
Confl. Peds. (#/hr)			2			4	1					1
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	2%	4%	0%	0%	2%	2%	1%	1%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	4	0	0	0	0	0	0
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	2	6			1			4				
Permitted Phases							4					
Actuated Green, G (s)	24.1	61.1			32.1		19.4	19.4				
Effective Green, g (s)	25.0	62.0			33.0		20.0	20.0				
Actuated g/C Ratio	0.28	0.69			0.37		0.22	0.22				
Clearance Time (s)	4.9	4.9			4.9		4.6	4.6				
Vehicle Extension (s)	2.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	450	2265			1195		323	980				
v/s Ratio Prot	0.16	c0.36			0.15							
v/s Ratio Perm							0.00	0.14				
v/c Ratio	0.56	0.52			0.41		0.02	0.61				
Uniform Delay, d1	27.8	6.8			21.3		27.3	31.5				
Progression Factor	0.91	0.61			1.00		1.00	1.00				
Incremental Delay, d2	0.7	0.7			1.1		0.0	1.2				
Delay (s)	26.0	4.7			22.3		27.3	32.7				
Level of Service	C	A			C		C	C				
Approach Delay (s)		8.5			22.3			32.6			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
Description: Count Date 7/20/09			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	121	1	6	23	0	2	0	13	0	0	0
Future Vol, veh/h	0	121	1	6	23	0	2	0	13	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	164	1	8	31	0	3	0	18	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	31	0	0	165	0	0	211	211	164	220	212	31
Stage 1	-	-	-	-	-	-	164	164	-	47	47	-
Stage 2	-	-	-	-	-	-	47	47	-	173	165	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1582	-	-	1413	-	-	746	686	881	736	685	1043
Stage 1	-	-	-	-	-	-	838	762	-	967	856	-
Stage 2	-	-	-	-	-	-	967	856	-	829	762	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1582	-	-	1413	-	-	743	682	881	718	681	1043
Mov Cap-2 Maneuver	-	-	-	-	-	-	743	682	-	718	681	-
Stage 1	-	-	-	-	-	-	838	762	-	967	851	-
Stage 2	-	-	-	-	-	-	962	851	-	812	762	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	9.3	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	860	1582	-	-	1413	-	-	-
HCM Lane V/C Ratio	0.024	-	-	-	0.006	-	-	-
HCM Control Delay (s)	9.3	0	-	-	7.6	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	23	38	2	5	47	416	102	11	251	6
Future Volume (veh/h)	1	1	23	38	2	5	47	416	102	11	251	6
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1800	1800	1748	1800	1800	1800	1800	1872	1800	1782	1872
Adj Flow Rate, veh/h	1	1	25	41	2	5	51	447	110	12	270	6
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	3	0	0	0	0	0	0	1	0
Cap, veh/h	289	8	193	265	60	149	820	1160	1025	613	1093	976
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.06	0.64	0.64	0.03	0.61	0.61
Sat Flow, veh/h	1405	58	1456	1342	451	1128	1714	1800	1591	1714	1782	1591
Grp Volume(v), veh/h	1	0	26	41	0	7	51	447	110	12	270	6
Grp Sat Flow(s),veh/h/ln	1405	0	1514	1342	0	1579	1714	1800	1591	1714	1782	1591
Q Serve(g_s), s	0.0	0.0	1.0	1.9	0.0	0.3	0.7	7.8	1.8	0.2	4.6	0.1
Cycle Q Clear(g_c), s	0.3	0.0	1.0	2.9	0.0	0.3	0.7	7.8	1.8	0.2	4.6	0.1
Prop In Lane	1.00		0.96	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	289	0	201	265	0	209	820	1160	1025	613	1093	976
V/C Ratio(X)	0.00	0.00	0.13	0.15	0.00	0.03	0.06	0.39	0.11	0.02	0.25	0.01
Avail Cap(c_a), veh/h	528	0	459	494	0	478	998	1160	1025	844	1093	976
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	0.0	25.6	26.8	0.0	25.3	3.9	5.6	4.5	4.6	5.9	5.0
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.3	0.0	0.1	0.0	1.0	0.2	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	0.7	0.0	0.1	0.3	4.2	0.8	0.1	2.4	0.0
LnGrp Delay(d),s/veh	25.3	0.0	25.9	27.1	0.0	25.3	3.9	6.6	4.7	4.6	6.4	5.0
LnGrp LOS	C		C	C		C	A	A	A	A	A	A
Approach Vol, veh/h		27			48			608			288	
Approach Delay, s/veh		25.9			26.8			6.0			6.3	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	47.1		13.6	8.1	45.0		13.6
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	9.8		4.9	2.7	6.6		3.0
Green Ext Time (p_c), s	0.0	5.8		0.2	0.0	5.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	28	126	90	13	14	148	352	299	13	272	34
Future Volume (veh/h)	83	28	126	90	13	14	148	352	299	13	272	34
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1652	1685	1543	1605	1543	1543	1543	1620
Adj Flow Rate, veh/h	90	30	137	98	14	15	161	383	325	14	296	37
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	498	336	283	471	156	167	515	641	524	322	833	103
Arrive On Green	0.08	0.21	0.21	0.08	0.21	0.20	0.12	0.40	0.40	0.03	0.32	0.32
Sat Flow, veh/h	1513	1588	1340	1513	728	780	1469	1605	1310	1469	2624	325
Grp Volume(v), veh/h	90	30	137	98	0	29	161	383	325	14	164	169
Grp Sat Flow(s),veh/h/ln	1513	1588	1340	1513	0	1507	1469	1605	1310	1469	1466	1483
Q Serve(g_s), s	2.4	0.8	4.8	2.6	0.0	0.8	3.5	10.0	10.6	0.3	4.6	4.7
Cycle Q Clear(g_c), s	2.4	0.8	4.8	2.6	0.0	0.8	3.5	10.0	10.6	0.3	4.6	4.7
Prop In Lane	1.00		1.00	1.00		0.52	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	498	336	283	471	0	323	515	641	524	322	465	471
V/C Ratio(X)	0.18	0.09	0.48	0.21	0.00	0.09	0.31	0.60	0.62	0.04	0.35	0.36
Avail Cap(c_a), veh/h	847	774	653	816	0	735	809	1233	1007	737	1126	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.3	16.9	18.5	14.3	0.0	16.9	8.9	12.6	12.8	11.6	14.0	14.0
Incr Delay (d2), s/veh	0.2	0.1	1.3	0.2	0.0	0.1	0.3	1.3	1.7	0.1	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.4	1.9	1.1	0.0	0.4	1.4	4.6	4.0	0.1	1.9	2.0
LnGrp Delay(d),s/veh	14.5	17.0	19.8	14.5	0.0	17.0	9.2	13.9	14.5	11.7	14.6	14.7
LnGrp LOS	B	B	B	B		B	A	B	B	B	B	B
Approach Vol, veh/h		257			127			869			347	
Approach Delay, s/veh		17.6			15.1			13.3			14.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	25.3	7.7	15.4	9.3	20.9	7.8	15.3
Change Period (Y+Rc), s	4.0	4.9	4.0	4.5	4.0	4.9	4.0	4.5
Max Green Setting (Gmax), s	16.0	40.1	16.0	25.5	16.0	40.1	16.0	25.5
Max Q Clear Time (g_c+I1), s	2.3	12.6	4.4	2.8	5.5	6.7	4.6	6.8
Green Ext Time (p_c), s	0.0	7.5	0.2	0.8	0.4	7.9	0.2	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

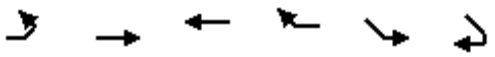
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	4	41	7	5	44	91	1004	4	31	421	46
Future Volume (veh/h)	3	4	41	7	5	44	91	1004	4	31	421	46
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1765	1765	1800	1765	1765	1714	1714	1714	1714	1714	1714
Adj Flow Rate, veh/h	3	4	44	7	5	47	97	1068	4	33	448	49
Adj No. of Lanes	0	1	1	0	1	1	1	1	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	196	218	299	256	154	297	595	1123	953	174	1123	951
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	511	1090	1500	761	771	1490	870	1714	1455	509	1714	1453
Grp Volume(v), veh/h	7	0	44	12	0	47	97	1068	4	33	448	49
Grp Sat Flow(s),veh/h/ln	1602	0	1500	1532	0	1490	870	1714	1455	509	1714	1453
Q Serve(g_s), s	0.0	0.0	1.3	0.0	0.0	1.4	3.2	31.3	0.1	3.5	6.7	0.7
Cycle Q Clear(g_c), s	0.2	0.0	1.3	0.3	0.0	1.4	9.9	31.3	0.1	34.8	6.7	0.7
Prop In Lane	0.43		1.00	0.58		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	413	0	299	410	0	297	595	1123	953	174	1123	951
V/C Ratio(X)	0.02	0.00	0.15	0.03	0.00	0.16	0.16	0.95	0.00	0.19	0.40	0.05
Avail Cap(c_a), veh/h	838	0	709	819	0	705	595	1123	953	174	1123	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	0.0	18.1	17.7	0.0	18.2	6.8	8.7	3.3	24.6	4.4	3.4
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.0	0.0	0.2	0.6	17.4	0.0	2.4	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.6	0.1	0.0	0.6	0.9	19.7	0.0	0.6	3.4	0.3
LnGrp Delay(d),s/veh	17.7	0.0	18.4	17.8	0.0	18.4	7.3	26.1	3.3	27.0	5.5	3.5
LnGrp LOS	B		B	B		B	A	C	A	C	A	A
Approach Vol, veh/h		51			59			1169			530	
Approach Delay, s/veh		18.3			18.3			24.5			6.6	
Approach LOS		B			B			C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		15.0		40.0		15.0
Change Period (Y+Rc), s		4.9		* 4.2		4.9		* 4.2
Max Green Setting (Gmax), s		35.1		* 26		35.1		* 26
Max Q Clear Time (g_c+I1), s		33.3		3.4		36.8		3.3
Green Ext Time (p_c), s		1.7		0.4		0.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Notes



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	141	454	628	1008	445	77
Future Volume (veh/h)	141	454	628	1008	445	77
Number	1	6	2	12	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.99	1.00	1.00
Adj Sat Flow, veh/h/ln	1714	1714	1714	1714	1714	1800
Adj Flow Rate, veh/h	150	483	668	0	473	0
Adj No. of Lanes	1	2	2	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	0
Cap, veh/h	495	1795	1795	797	844	363
Arrive On Green	0.55	0.55	0.55	0.00	0.26	0.00
Sat Flow, veh/h	743	3343	3343	1445	3265	1530
Grp Volume(v), veh/h	150	483	668	0	473	0
Grp Sat Flow(s),veh/h/ln	743	1629	1629	1445	1633	1530
Q Serve(g_s), s	6.0	3.3	4.9	0.0	5.3	0.0
Cycle Q Clear(g_c), s	10.9	3.3	4.9	0.0	5.3	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	495	1795	1795	797	844	363
V/C Ratio(X)	0.30	0.27	0.37	0.00	0.56	0.00
Avail Cap(c_a), veh/h	810	3178	3178	1411	2409	1096
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	8.4	5.0	5.3	0.0	13.5	0.0
Incr Delay (d2), s/veh	0.4	0.1	0.2	0.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.5	2.2	0.0	2.4	0.0
LnGrp Delay(d),s/veh	8.8	5.1	5.5	0.0	14.1	0.0
LnGrp LOS	A	A	A		B	
Approach Vol, veh/h		633	668		473	
Approach Delay, s/veh		6.0	5.5		14.1	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		27.2				27.2		14.9
Change Period (Y+Rc), s		4.9				4.9		4.9
Max Green Setting (Gmax), s		40.1				40.1		30.1
Max Q Clear Time (g_c+I1), s		6.9				12.9		7.3
Green Ext Time (p_c), s		10.0				9.4		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	7.9
HCM 2010 LOS	A

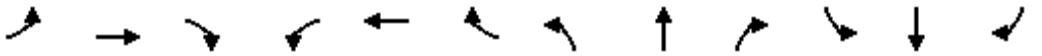
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	862	77	141	1240	18	372	108	124	39	49	25
Future Volume (veh/h)	33	862	77	141	1240	18	372	108	124	39	49	25
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1766	1800	1731	1800	1800	1800	1849	1872	1800	1872	1872
Adj Flow Rate, veh/h	34	898	80	147	1292	19	314	215	129	41	51	26
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	4	0	0	0	0	0	0	0	0
Cap, veh/h	213	1200	107	317	1463	22	425	267	160	182	122	62
Arrive On Green	0.06	0.39	0.37	0.11	0.42	0.41	0.25	0.25	0.23	0.11	0.11	0.09
Sat Flow, veh/h	1714	3116	278	1648	3450	51	1714	1076	646	1714	1150	586
Grp Volume(v), veh/h	34	483	495	147	640	671	314	0	344	41	0	77
Grp Sat Flow(s),veh/h/ln	1714	1678	1716	1648	1710	1791	1714	0	1722	1714	0	1736
Q Serve(g_s), s	1.1	23.7	23.7	4.7	32.8	32.8	16.0	0.0	17.9	2.1	0.0	4.0
Cycle Q Clear(g_c), s	1.1	23.7	23.7	4.7	32.8	32.8	16.0	0.0	17.9	2.1	0.0	4.0
Prop In Lane	1.00		0.16	1.00		0.03	1.00		0.38	1.00		0.34
Lane Grp Cap(c), veh/h	213	646	661	317	725	759	425	0	427	182	0	184
V/C Ratio(X)	0.16	0.75	0.75	0.46	0.88	0.88	0.74	0.00	0.81	0.23	0.00	0.42
Avail Cap(c_a), veh/h	393	801	820	421	811	850	575	0	578	395	0	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.3	25.2	25.4	17.9	25.2	25.2	32.9	0.0	34.0	38.9	0.0	40.1
Incr Delay (d2), s/veh	0.1	2.2	2.1	0.4	9.7	9.3	1.9	0.0	4.3	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	11.3	11.5	2.1	17.2	18.2	7.8	0.0	9.0	1.0	0.0	1.9
LnGrp Delay(d),s/veh	20.4	27.4	27.5	18.3	34.9	34.6	34.9	0.0	38.2	39.1	0.0	40.6
LnGrp LOS	C	C	C	B	C	C	C		D	D		D
Approach Vol, veh/h		1012			1458			658			118	
Approach Delay, s/veh		27.2			33.1			36.6			40.1	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	45.2		26.7	14.0	41.2		13.2
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	16.0	44.0		30.0	16.0	44.0		20.0
Max Q Clear Time (g_c+I1), s	3.1	34.8		19.9	6.7	25.7		6.0
Green Ext Time (p_c), s	0.0	4.4		1.7	0.2	6.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	32.2
HCM 2010 LOS	C

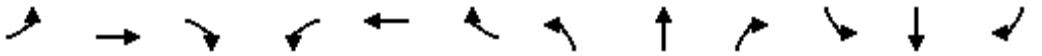
Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	653	93	219	1304	0	0	0	0	216	562	362
Future Volume (vph)	0	653	93	219	1304	0	0	0	0	216	562	362
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	11	12	12	12	12	12	13	12	13
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.98		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3203		1605	3353					1716	3307	1524
Flt Permitted		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3203		1605	3353					1716	3307	1524
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	666	95	223	1331	0	0	0	0	220	573	369
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	54
Lane Group Flow (vph)	0	750	0	223	1331	0	0	0	0	220	573	315
Confl. Peds. (#/hr)			3	3					1			4
Heavy Vehicles (%)	0%	4%	5%	3%	2%	0%	2%	2%	2%	3%	3%	2%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	2	0
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		5		6	2						4	
Permitted Phases										4		4
Actuated Green, G (s)		38.6		20.1	63.6					26.9	26.9	26.9
Effective Green, g (s)		39.5		21.0	64.5					27.5	27.5	27.5
Actuated g/C Ratio		0.40		0.21	0.64					0.28	0.28	0.28
Clearance Time (s)		4.9		4.9	4.9					4.6	4.6	4.6
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1265		337	2162					471	909	419
v/s Ratio Prot		0.23		0.14	c0.40						0.17	
v/s Ratio Perm										0.13		c0.21
v/c Ratio		0.59		0.66	0.62					0.47	0.63	0.75
Uniform Delay, d1		23.9		36.2	10.5					30.2	31.8	33.1
Progression Factor		1.00		0.83	0.40					0.90	0.91	0.90
Incremental Delay, d2		2.1		2.2	0.8					0.7	1.4	7.3
Delay (s)		25.9		32.2	5.0					27.9	30.5	37.0
Level of Service		C		C	A					C	C	D
Approach Delay (s)		25.9			8.9			0.0			32.1	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	308	897	0	0	960	211	362	903	172	0	0	0
Future Volume (vph)	308	897	0	0	960	211	362	903	172	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0				
Lane Util. Factor	1.00	0.95			0.95		0.86	0.86				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.97		1.00	0.98				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1621	3288			3251		1454	4468				
Flt Permitted	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	1621	3288			3251		1454	4468				
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	318	925	0	0	990	218	373	931	177	0	0	0
RTOR Reduction (vph)	0	0	0	0	19	0	0	24	0	0	0	0
Lane Group Flow (vph)	318	925	0	0	1189	0	336	1121	0	0	0	0
Confl. Peds. (#/hr)			2			4	1					1
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	2%	4%	0%	0%	2%	2%	1%	1%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	4	0	0	0	0	0	0
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	2	6			1			4				
Permitted Phases							4					
Actuated Green, G (s)	20.1	63.1			38.1		27.4	27.4				
Effective Green, g (s)	21.0	64.0			39.0		28.0	28.0				
Actuated g/C Ratio	0.21	0.64			0.39		0.28	0.28				
Clearance Time (s)	4.9	4.9			4.9		4.6	4.6				
Vehicle Extension (s)	2.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	340	2104			1267		407	1251				
v/s Ratio Prot	c0.20	0.28			c0.37							
v/s Ratio Perm							0.23	0.25				
v/c Ratio	0.94	0.44			0.94		0.83	0.90				
Uniform Delay, d1	38.8	9.0			29.3		33.7	34.6				
Progression Factor	1.19	1.14			1.00		1.00	1.00				
Incremental Delay, d2	30.5	0.6			14.3		12.8	8.6				
Delay (s)	76.7	10.9			43.6		46.5	43.2				
Level of Service	E	B			D		D	D				
Approach Delay (s)		27.8			43.6			44.0			0.0	
Approach LOS		C			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
Description: Count Date 7/20/09			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	56	3	7	92	0	3	0	17	0	0	0
Future Vol, veh/h	0	56	3	7	92	0	3	0	17	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	59	3	7	97	0	3	0	18	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	97	0	0	62	0	0	173	173	61	181	174	97
Stage 1	-	-	-	-	-	-	61	61	-	112	112	-
Stage 2	-	-	-	-	-	-	112	112	-	69	62	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1496	-	-	1541	-	-	790	720	1004	781	719	959
Stage 1	-	-	-	-	-	-	950	844	-	893	803	-
Stage 2	-	-	-	-	-	-	893	803	-	941	843	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1496	-	-	1541	-	-	787	717	1004	764	716	959
Mov Cap-2 Maneuver	-	-	-	-	-	-	787	717	-	764	716	-
Stage 1	-	-	-	-	-	-	950	844	-	893	799	-
Stage 2	-	-	-	-	-	-	889	799	-	924	843	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	8.8	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	964	1496	-	-	1541	-	-	-
HCM Lane V/C Ratio	0.022	-	-	-	0.005	-	-	-
HCM Control Delay (s)	8.8	0	-	-	7.3	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	26	57	181	14	21	13	169	140	31	387	3
Future Volume (veh/h)	5	26	57	181	14	21	13	169	140	31	387	3
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1800	1800	1748	1800	1800	1800	1800	1872	1800	1782	1872
Adj Flow Rate, veh/h	7	36	78	248	19	29	18	232	192	42	530	4
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	0	0	0	3	0	0	0	0	0	0	1	0
Cap, veh/h	415	130	283	345	166	253	455	944	834	622	966	863
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.03	0.52	0.52	0.05	0.54	0.54
Sat Flow, veh/h	1367	504	1091	1252	640	977	1714	1800	1591	1714	1782	1591
Grp Volume(v), veh/h	7	0	114	248	0	48	18	232	192	42	530	4
Grp Sat Flow(s),veh/h/ln	1367	0	1595	1252	0	1616	1714	1800	1591	1714	1782	1591
Q Serve(g_s), s	0.3	0.0	4.5	15.4	0.0	1.8	0.4	5.5	5.1	0.8	15.1	0.1
Cycle Q Clear(g_c), s	2.1	0.0	4.5	19.8	0.0	1.8	0.4	5.5	5.1	0.8	15.1	0.1
Prop In Lane	1.00		0.68	1.00		0.60	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	415	0	413	345	0	419	455	944	834	622	966	863
V/C Ratio(X)	0.02	0.00	0.28	0.72	0.00	0.11	0.04	0.25	0.23	0.07	0.55	0.00
Avail Cap(c_a), veh/h	415	0	413	345	0	419	640	944	834	776	966	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	0.0	23.1	31.0	0.0	22.1	9.0	10.1	10.0	7.4	11.6	8.2
Incr Delay (d2), s/veh	0.0	0.0	0.4	7.1	0.0	0.1	0.0	0.6	0.6	0.0	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.0	6.0	0.0	0.8	0.2	2.9	2.4	0.4	8.0	0.0
LnGrp Delay(d),s/veh	22.9	0.0	23.5	38.0	0.0	22.2	9.0	10.7	10.7	7.5	13.9	8.2
LnGrp LOS	C		C	D		C	A	B	B	A	B	A
Approach Vol, veh/h		121			296			442			576	
Approach Delay, s/veh		23.4			35.5			10.6			13.4	
Approach LOS		C			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	45.0		25.0	6.6	46.4		25.0
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.8	7.5		21.8	2.4	17.1		6.5
Green Ext Time (p_c), s	0.0	7.2		0.0	0.0	6.5		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	17.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	47	304	256	33	40	95	131	93	34	573	43
Future Volume (veh/h)	44	47	304	256	33	40	95	131	93	34	573	43
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1652	1685	1543	1605	1543	1543	1543	1620
Adj Flow Rate, veh/h	48	51	330	278	36	43	103	142	101	37	623	47
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	485	441	373	552	266	318	273	550	449	430	863	65
Arrive On Green	0.05	0.28	0.28	0.16	0.39	0.38	0.08	0.34	0.34	0.05	0.31	0.31
Sat Flow, veh/h	1513	1588	1343	1513	685	818	1469	1605	1310	1469	2762	208
Grp Volume(v), veh/h	48	51	330	278	0	79	103	142	101	37	330	340
Grp Sat Flow(s),veh/h/ln	1513	1588	1343	1513	0	1504	1469	1605	1310	1469	1466	1505
Q Serve(g_s), s	1.8	2.0	19.4	10.0	0.0	2.8	3.7	5.3	4.5	1.4	16.5	16.5
Cycle Q Clear(g_c), s	1.8	2.0	19.4	10.0	0.0	2.8	3.7	5.3	4.5	1.4	16.5	16.5
Prop In Lane	1.00		1.00	1.00		0.54	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	485	441	373	552	0	584	273	550	449	430	458	470
V/C Ratio(X)	0.10	0.12	0.88	0.50	0.00	0.14	0.38	0.26	0.23	0.09	0.72	0.72
Avail Cap(c_a), veh/h	717	501	423	617	0	584	463	798	652	664	729	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	22.2	28.5	14.9	0.0	16.4	18.0	19.5	19.3	17.5	25.2	25.2
Incr Delay (d2), s/veh	0.1	0.1	18.0	0.7	0.0	0.1	0.9	0.4	0.4	0.1	3.1	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.9	9.1	4.2	0.0	1.2	1.5	2.4	1.7	0.6	7.0	7.2
LnGrp Delay(d),s/veh	19.5	22.3	46.5	15.6	0.0	16.5	18.9	19.9	19.7	17.6	28.2	28.2
LnGrp LOS	B	C	D	B		B	B	B	B	B	C	C
Approach Vol, veh/h		429			357			346			707	
Approach Delay, s/veh		40.6			15.8			19.5			27.6	
Approach LOS		D			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	32.2	7.3	36.0	9.3	29.8	16.4	26.9
Change Period (Y+Rc), s	4.0	4.9	4.0	4.5	4.0	4.9	4.0	4.5
Max Green Setting (Gmax), s	16.0	40.1	16.0	25.5	16.0	40.1	16.0	25.5
Max Q Clear Time (g_c+I1), s	3.4	7.3	3.8	4.8	5.7	18.5	12.0	21.4
Green Ext Time (p_c), s	0.0	6.5	0.1	2.1	0.2	5.8	0.4	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

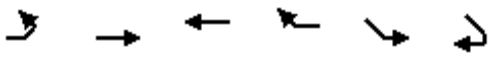
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1	144	1	2	5	38	406	1	4	1031	81
Future Volume (veh/h)	36	1	144	1	2	5	38	406	1	4	1031	81
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1765	1765	1800	1765	1765	1714	1714	1714	1714	1714	1714
Adj Flow Rate, veh/h	40	1	160	1	2	6	42	451	1	4	1146	90
Adj No. of Lanes	0	1	1	0	1	1	1	1	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	347	7	234	140	206	232	167	1184	1005	665	1184	1003
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.69	0.69	0.69	0.69	0.69	0.69
Sat Flow, veh/h	1349	45	1500	309	1318	1486	436	1714	1455	908	1714	1453
Grp Volume(v), veh/h	41	0	160	3	0	6	42	451	1	4	1146	90
Grp Sat Flow(s),veh/h/ln	1394	0	1500	1627	0	1486	436	1714	1455	908	1714	1453
Q Serve(g_s), s	1.3	0.0	5.3	0.0	0.0	0.2	3.5	5.8	0.0	0.1	32.5	1.1
Cycle Q Clear(g_c), s	1.3	0.0	5.3	0.1	0.0	0.2	36.0	5.8	0.0	5.9	32.5	1.1
Prop In Lane	0.98		1.00	0.33		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	354	0	234	346	0	232	167	1184	1005	665	1184	1003
V/C Ratio(X)	0.12	0.00	0.68	0.01	0.00	0.03	0.25	0.38	0.00	0.01	0.97	0.09
Avail Cap(c_a), veh/h	832	0	748	872	0	741	167	1184	1005	665	1184	1003
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.1	0.0	20.8	18.6	0.0	18.6	24.9	3.4	2.5	4.6	7.5	2.7
Incr Delay (d2), s/veh	0.1	0.0	3.5	0.0	0.0	0.0	3.6	0.9	0.0	0.0	19.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	2.4	0.0	0.0	0.1	0.8	2.9	0.0	0.0	21.1	0.5
LnGrp Delay(d),s/veh	19.3	0.0	24.3	18.6	0.0	18.7	28.4	4.3	2.5	4.6	27.0	2.8
LnGrp LOS	B		C	B		B	C	A	A	A	C	A
Approach Vol, veh/h		201			9			494			1240	
Approach Delay, s/veh		23.3			18.7			6.4			25.2	
Approach LOS		C			B			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		12.1		40.0		12.1
Change Period (Y+Rc), s		4.9		* 4.2		4.9		* 4.2
Max Green Setting (Gmax), s		35.1		* 26		35.1		* 26
Max Q Clear Time (g_c+I1), s		38.0		2.2		34.5		7.3
Green Ext Time (p_c), s		0.0		0.9		0.6		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Notes



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	89	530	337	342	1385	64
Future Volume (veh/h)	89	530	337	342	1385	64
Number	1	6	2	12	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.99	1.00	1.00
Adj Sat Flow, veh/h/ln	1714	1714	1714	1714	1714	1800
Adj Flow Rate, veh/h	99	589	374	0	1539	0
Adj No. of Lanes	1	2	2	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	5	5	5	5	5	0
Cap, veh/h	397	1141	1141	507	1622	734
Arrive On Green	0.35	0.35	0.35	0.00	0.50	0.00
Sat Flow, veh/h	974	3343	3343	1445	3265	1530
Grp Volume(v), veh/h	99	589	374	0	1539	0
Grp Sat Flow(s),veh/h/ln	974	1629	1629	1445	1633	1530
Q Serve(g_s), s	4.3	7.5	4.4	0.0	23.5	0.0
Cycle Q Clear(g_c), s	8.8	7.5	4.4	0.0	23.5	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	397	1141	1141	507	1622	734
V/C Ratio(X)	0.25	0.52	0.33	0.00	0.95	0.00
Avail Cap(c_a), veh/h	725	2240	2240	994	1622	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	15.7	13.5	12.5	0.0	12.5	0.0
Incr Delay (d2), s/veh	0.4	0.4	0.2	0.0	12.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.4	2.0	0.0	13.3	0.0
LnGrp Delay(d),s/veh	16.1	13.9	12.7	0.0	24.9	0.0
LnGrp LOS	B	B	B		C	
Approach Vol, veh/h		688	374		1539	
Approach Delay, s/veh		14.2	12.7		24.9	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		22.3				22.3		30.0
Change Period (Y+Rc), s		4.9				4.9		4.9
Max Green Setting (Gmax), s		35.1				35.1		25.1
Max Q Clear Time (g_c+I1), s		6.4				10.8		25.5
Green Ext Time (p_c), s		7.0				6.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	1444	196	157	617	28	168	24	101	80	117	34
Future Volume (veh/h)	27	1444	196	157	617	28	168	24	101	80	117	34
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1767	1800	1731	1800	1800	1800	1833	1872	1800	1872	1872
Adj Flow Rate, veh/h	29	1553	211	169	663	30	158	58	109	86	126	37
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	4	0	0	0	0	0	0	0	0
Cap, veh/h	447	1400	187	221	1683	76	269	88	165	242	195	57
Arrive On Green	0.06	0.47	0.46	0.09	0.51	0.49	0.16	0.16	0.14	0.14	0.14	0.12
Sat Flow, veh/h	1714	2976	398	1648	3332	151	1714	560	1052	1714	1380	405
Grp Volume(v), veh/h	29	866	898	169	340	353	158	0	167	86	0	163
Grp Sat Flow(s),veh/h/ln	1714	1678	1695	1648	1710	1773	1714	0	1611	1714	0	1785
Q Serve(g_s), s	0.9	50.4	50.4	6.2	13.2	13.2	9.2	0.0	10.5	4.9	0.0	9.3
Cycle Q Clear(g_c), s	0.9	50.4	50.4	6.2	13.2	13.2	9.2	0.0	10.5	4.9	0.0	9.3
Prop In Lane	1.00		0.23	1.00		0.08	1.00		0.65	1.00		0.23
Lane Grp Cap(c), veh/h	447	790	798	221	864	896	269	0	252	242	0	252
V/C Ratio(X)	0.06	1.10	1.13	0.76	0.39	0.39	0.59	0.00	0.66	0.36	0.00	0.65
Avail Cap(c_a), veh/h	527	790	798	237	864	896	431	0	405	351	0	365
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	28.3	28.5	27.3	16.4	16.4	42.0	0.0	43.1	41.6	0.0	43.7
Incr Delay (d2), s/veh	0.0	61.4	72.4	11.3	0.1	0.1	0.8	0.0	1.1	0.3	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	36.7	39.6	5.5	6.2	6.4	4.4	0.0	4.7	2.3	0.0	4.7
LnGrp Delay(d),s/veh	13.3	89.8	101.0	38.6	16.5	16.5	42.7	0.0	44.2	41.9	0.0	44.7
LnGrp LOS	B	F	F	D	B	B	D		D	D		D
Approach Vol, veh/h		1793			862			325			249	
Approach Delay, s/veh		94.1			20.8			43.5			43.8	
Approach LOS		F			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	59.0		19.9	14.0	55.0		18.2
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	11.0	49.0		25.0	11.0	49.0		20.0
Max Q Clear Time (g_c+I1), s	2.9	15.2		12.5	8.2	52.4		11.3
Green Ext Time (p_c), s	0.0	8.4		0.8	0.1	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	65.6
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	966	233	111	571	0	0	0	0	322	697	414
Future Volume (vph)	0	966	233	111	571	0	0	0	0	322	697	414
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	11	12	12	12	12	12	13	12	13
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3164		1605	3353					1716	3307	1523
Flt Permitted		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3164		1605	3353					1716	3307	1523
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	1039	251	119	614	0	0	0	0	346	749	445
RTOR Reduction (vph)	0	22	0	0	0	0	0	0	0	0	0	163
Lane Group Flow (vph)	0	1268	0	119	614	0	0	0	0	346	749	282
Confl. Peds. (#/hr)			3	3					1			4
Heavy Vehicles (%)	0%	4%	5%	3%	2%	0%	2%	2%	2%	3%	3%	2%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	2	0
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		5		6	2						4	
Permitted Phases										4		4
Actuated Green, G (s)		37.6		9.1	51.6					28.9	28.9	28.9
Effective Green, g (s)		38.5		10.0	52.5					29.5	29.5	29.5
Actuated g/C Ratio		0.43		0.11	0.58					0.33	0.33	0.33
Clearance Time (s)		4.9		4.9	4.9					4.6	4.6	4.6
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1353		178	1955					562	1083	499
v/s Ratio Prot		c0.40		c0.07	0.18						c0.23	
v/s Ratio Perm										0.20		0.18
v/c Ratio		0.94		0.67	0.31					0.62	0.69	0.56
Uniform Delay, d1		24.6		38.4	9.6					25.5	26.3	25.0
Progression Factor		1.00		0.94	0.44					0.86	0.87	0.79
Incremental Delay, d2		13.5		6.9	0.4					1.9	1.8	1.4
Delay (s)		38.1		43.2	4.6					23.7	24.7	21.0
Level of Service		D		D	A					C	C	C
Approach Delay (s)		38.1			10.9			0.0			23.4	
Approach LOS		D			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	267	1212	0	0	443	83	25	490	149	0	0	0
Future Volume (vph)	267	1212	0	0	443	83	25	490	149	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0				
Lane Util. Factor	1.00	0.95			0.95		0.86	0.86				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.98		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1621	3288			3264		1454	4413				
Flt Permitted	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	1621	3288			3264		1454	4413				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	287	1303	0	0	476	89	27	527	160	0	0	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	49	0	0	0	0
Lane Group Flow (vph)	287	1303	0	0	550	0	24	641	0	0	0	0
Confl. Peds. (#/hr)			2			4	1					1
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	2%	4%	0%	0%	2%	2%	1%	1%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	4	0	0	0	0	0	0
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	2	6			1			4				
Permitted Phases							4					
Actuated Green, G (s)	24.1	60.4			31.4		20.1	20.1				
Effective Green, g (s)	25.0	61.3			32.3		20.7	20.7				
Actuated g/C Ratio	0.28	0.68			0.36		0.23	0.23				
Clearance Time (s)	4.9	4.9			4.9		4.6	4.6				
Vehicle Extension (s)	2.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	450	2239			1171		334	1014				
v/s Ratio Prot	0.18	c0.40			0.17							
v/s Ratio Perm							0.02	0.15				
v/c Ratio	0.64	0.58			0.47		0.07	0.63				
Uniform Delay, d1	28.5	7.6			22.2		27.1	31.2				
Progression Factor	0.87	0.55			1.00		1.00	1.00				
Incremental Delay, d2	1.5	0.7			1.4		0.1	1.3				
Delay (s)	26.4	4.9			23.6		27.2	32.5				
Level of Service	C	A			C		C	C				
Approach Delay (s)		8.8			23.6			32.3			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
Description: Count Date 7/20/09			

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	1	173	53	17	39	1
Future Vol, veh/h	1	173	53	17	39	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	234	72	23	53	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	95	0	-	0	319	83
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	236	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1499	-	-	-	674	976
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	803	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1499	-	-	-	674	976
Mov Cap-2 Maneuver	-	-	-	-	694	-
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	802	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1499	-	-	-	699
HCM Lane V/C Ratio	0.001	-	-	-	0.077
HCM Control Delay (s)	7.4	-	-	-	10.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	212	1	6	68	25	2	1	13	59	1	1
Future Vol, veh/h	1	212	1	6	68	25	2	1	13	59	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	286	1	8	92	34	3	1	18	80	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	126	0	0	288	0	0	416	432	287	424	416	109
Stage 1	-	-	-	-	-	-	290	290	-	125	125	-
Stage 2	-	-	-	-	-	-	126	142	-	299	291	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1460	-	-	1274	-	-	547	516	752	540	527	945
Stage 1	-	-	-	-	-	-	718	672	-	879	792	-
Stage 2	-	-	-	-	-	-	878	779	-	710	672	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1460	-	-	1274	-	-	542	512	752	524	523	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	542	512	-	524	523	-
Stage 1	-	-	-	-	-	-	718	672	-	878	787	-
Stage 2	-	-	-	-	-	-	870	774	-	692	672	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	10.3	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	698	1460	-	-	1274	-	-	528
HCM Lane V/C Ratio	0.031	0.001	-	-	0.006	-	-	0.156
HCM Control Delay (s)	10.3	7.5	-	-	7.8	-	-	13.1
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	24	49	2	5	48	446	112	11	286	6
Future Volume (veh/h)	1	1	24	49	2	5	48	446	112	11	286	6
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1800	1800	1748	1800	1800	1800	1800	1872	1800	1782	1872
Adj Flow Rate, veh/h	1	1	26	53	2	5	52	480	120	12	308	6
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	3	0	0	0	0	0	0	1	0
Cap, veh/h	297	8	203	273	63	157	779	1151	1017	578	1084	968
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.06	0.64	0.64	0.03	0.61	0.61
Sat Flow, veh/h	1406	56	1457	1342	451	1127	1714	1800	1591	1714	1782	1591
Grp Volume(v), veh/h	1	0	27	53	0	7	52	480	120	12	308	6
Grp Sat Flow(s),veh/h/ln	1406	0	1513	1342	0	1578	1714	1800	1591	1714	1782	1591
Q Serve(g_s), s	0.0	0.0	1.1	2.4	0.0	0.3	0.7	8.8	2.0	0.2	5.5	0.1
Cycle Q Clear(g_c), s	0.3	0.0	1.1	3.5	0.0	0.3	0.7	8.8	2.0	0.2	5.5	0.1
Prop In Lane	1.00		0.96	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	297	0	210	273	0	219	779	1151	1017	578	1084	968
V/C Ratio(X)	0.00	0.00	0.13	0.19	0.00	0.03	0.07	0.42	0.12	0.02	0.28	0.01
Avail Cap(c_a), veh/h	524	0	455	489	0	474	954	1151	1017	808	1084	968
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	25.5	26.9	0.0	25.1	4.1	6.0	4.7	4.8	6.2	5.2
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.3	0.0	0.1	0.0	1.1	0.2	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.5	0.9	0.0	0.1	0.3	4.6	0.9	0.1	2.9	0.0
LnGrp Delay(d),s/veh	25.2	0.0	25.7	27.3	0.0	25.2	4.1	7.1	5.0	4.8	6.9	5.2
LnGrp LOS	C		C	C		C	A	A	A	A	A	A
Approach Vol, veh/h		28			60			652			326	
Approach Delay, s/veh		25.7			27.0			6.5			6.8	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	47.1		14.2	8.1	45.0		14.2
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	10.8		5.5	2.7	7.5		3.1
Green Ext Time (p_c), s	0.0	6.5		0.3	0.0	6.6		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	8.2
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	56	189	153	57	64	269	330	374	52	264	49
Future Volume (veh/h)	92	56	189	153	57	64	269	330	374	52	264	49
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1652	1685	1543	1605	1543	1543	1543	1620
Adj Flow Rate, veh/h	100	61	205	166	62	70	292	359	407	57	287	53
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	417	335	283	455	177	200	536	655	535	334	731	133
Arrive On Green	0.08	0.21	0.21	0.12	0.25	0.24	0.17	0.41	0.41	0.06	0.30	0.30
Sat Flow, veh/h	1513	1588	1340	1513	707	798	1469	1605	1310	1469	2475	451
Grp Volume(v), veh/h	100	61	205	166	0	132	292	359	407	57	168	172
Grp Sat Flow(s),veh/h/ln	1513	1588	1340	1513	0	1505	1469	1605	1310	1469	1466	1460
Q Serve(g_s), s	3.6	2.2	10.2	5.8	0.0	5.2	8.9	12.2	19.0	1.9	6.5	6.7
Cycle Q Clear(g_c), s	3.6	2.2	10.2	5.8	0.0	5.2	8.9	12.2	19.0	1.9	6.5	6.7
Prop In Lane	1.00		1.00	1.00		0.53	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	417	335	283	455	0	377	536	655	535	334	433	431
V/C Ratio(X)	0.24	0.18	0.72	0.36	0.00	0.35	0.54	0.55	0.76	0.17	0.39	0.40
Avail Cap(c_a), veh/h	650	579	488	629	0	548	631	922	753	594	842	839
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	23.1	26.2	17.3	0.0	22.1	12.1	16.1	18.1	15.5	20.0	20.1
Incr Delay (d2), s/veh	0.3	0.3	3.5	0.5	0.0	0.6	0.9	1.0	3.8	0.2	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.0	4.0	2.4	0.0	2.2	3.6	5.6	7.4	0.8	2.7	2.8
LnGrp Delay(d),s/veh	19.7	23.4	29.7	17.7	0.0	22.7	13.0	17.1	21.9	15.8	20.8	20.9
LnGrp LOS	B	C	C	B		C	B	B	C	B	C	C
Approach Vol, veh/h		366			298			1058			397	
Approach Delay, s/veh		25.9			19.9			17.8			20.1	
Approach LOS		C			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	33.1	9.0	21.9	15.4	25.1	11.8	19.1
Change Period (Y+Rc), s	4.0	4.9	4.0	4.5	4.0	4.9	4.0	4.5
Max Green Setting (Gmax), s	16.0	40.1	16.0	25.5	16.0	40.1	16.0	25.5
Max Q Clear Time (g_c+I1), s	3.9	21.0	5.6	7.2	10.9	8.7	7.8	12.2
Green Ext Time (p_c), s	0.1	7.1	0.2	1.7	0.5	8.5	0.4	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	2	72	1	2	9	152	1200	1	6	528	81
Future Volume (veh/h)	22	2	72	1	2	9	152	1200	1	6	528	81
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1765	1765	1800	1765	1765	1714	1714	1714	1714	1714	1714
Adj Flow Rate, veh/h	23	2	77	1	2	10	162	1277	1	6	562	86
Adj No. of Lanes	0	1	1	0	1	1	1	1	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	384	28	303	160	260	302	496	1119	950	131	1119	948
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	1278	139	1500	358	1284	1490	757	1714	1455	419	1714	1453
Grp Volume(v), veh/h	25	0	77	3	0	10	162	1277	1	6	562	86
Grp Sat Flow(s),veh/h/ln	1416	0	1500	1642	0	1490	757	1714	1455	419	1714	1453
Q Serve(g_s), s	0.6	0.0	2.4	0.0	0.0	0.3	7.8	36.0	0.0	0.0	9.3	1.2
Cycle Q Clear(g_c), s	0.7	0.0	2.4	0.1	0.0	0.3	17.1	36.0	0.0	36.0	9.3	1.2
Prop In Lane	0.92		1.00	0.33		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	412	0	303	419	0	302	496	1119	950	131	1119	948
V/C Ratio(X)	0.06	0.00	0.25	0.01	0.00	0.03	0.33	1.14	0.00	0.05	0.50	0.09
Avail Cap(c_a), veh/h	791	0	707	845	0	703	496	1119	950	131	1119	948
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	18.5	17.6	0.0	17.7	9.4	9.6	3.3	27.6	5.0	3.5
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.0	0.0	0.0	1.7	74.7	0.0	0.7	1.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.0	0.0	0.0	0.1	1.9	39.7	0.0	0.1	4.9	0.5
LnGrp Delay(d),s/veh	17.9	0.0	18.9	17.6	0.0	17.7	11.1	84.3	3.3	28.2	6.6	3.7
LnGrp LOS	B		B	B		B	B	F	A	C	A	A
Approach Vol, veh/h		102			13			1440			654	
Approach Delay, s/veh		18.7			17.7			76.0			6.4	
Approach LOS		B			B			E			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		15.2		40.0		15.2
Change Period (Y+Rc), s		4.9		* 4.2		4.9		* 4.2
Max Green Setting (Gmax), s		35.1		* 26		35.1		* 26
Max Q Clear Time (g_c+I1), s		38.0		2.3		38.0		4.4
Green Ext Time (p_c), s		0.0		0.4		0.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	52.4
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	172	465	644	1310	598	93
Future Volume (veh/h)	172	465	644	1310	598	93
Number	1	6	2	12	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.99	1.00	1.00
Adj Sat Flow, veh/h/ln	1714	1714	1714	1714	1714	1800
Adj Flow Rate, veh/h	183	495	685	0	636	0
Adj No. of Lanes	1	2	2	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	0
Cap, veh/h	459	1796	1796	797	947	417
Arrive On Green	0.55	0.55	0.55	0.00	0.29	0.00
Sat Flow, veh/h	731	3343	3343	1445	3265	1530
Grp Volume(v), veh/h	183	495	685	0	636	0
Grp Sat Flow(s),veh/h/ln	731	1629	1629	1445	1633	1530
Q Serve(g_s), s	9.6	4.1	6.0	0.0	8.7	0.0
Cycle Q Clear(g_c), s	15.6	4.1	6.0	0.0	8.7	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	459	1796	1796	797	947	417
V/C Ratio(X)	0.40	0.28	0.38	0.00	0.67	0.00
Avail Cap(c_a), veh/h	649	2644	2644	1173	2004	912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	10.9	6.0	6.4	0.0	15.8	0.0
Incr Delay (d2), s/veh	0.7	0.1	0.2	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.8	2.7	0.0	4.0	0.0
LnGrp Delay(d),s/veh	11.5	6.1	6.6	0.0	16.6	0.0
LnGrp LOS	B	A	A		B	
Approach Vol, veh/h		678	685		636	
Approach Delay, s/veh		7.6	6.6		16.6	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		31.9				31.9		18.7
Change Period (Y+Rc), s		4.9				4.9		4.9
Max Green Setting (Gmax), s		40.1				40.1		30.1
Max Q Clear Time (g_c+I1), s		8.0				17.6		10.7
Green Ext Time (p_c), s		10.7				9.4		3.1

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

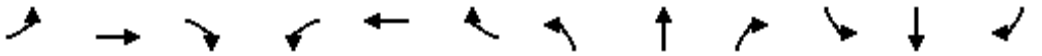
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	979	104	145	1456	18	430	111	128	40	50	36
Future Volume (veh/h)	39	979	104	145	1456	18	430	111	128	40	50	36
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1766	1800	1731	1800	1800	1800	1850	1872	1800	1872	1872
Adj Flow Rate, veh/h	41	1020	108	151	1517	19	348	255	133	42	52	38
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	4	0	0	0	0	0	0	0	0
Cap, veh/h	97	1165	123	181	1490	19	450	299	156	186	107	78
Arrive On Green	0.06	0.38	0.37	0.11	0.43	0.42	0.26	0.26	0.24	0.11	0.11	0.09
Sat Flow, veh/h	1714	3062	324	1648	3459	43	1714	1140	594	1714	986	721
Grp Volume(v), veh/h	41	559	569	151	749	787	348	0	388	42	0	90
Grp Sat Flow(s),veh/h/ln	1714	1678	1708	1648	1710	1792	1714	0	1734	1714	0	1707
Q Serve(g_s), s	2.5	32.9	33.0	9.6	45.8	45.8	20.0	0.0	22.7	2.4	0.0	5.3
Cycle Q Clear(g_c), s	2.5	32.9	33.0	9.6	45.8	45.8	20.0	0.0	22.7	2.4	0.0	5.3
Prop In Lane	1.00		0.19	1.00		0.02	1.00		0.34	1.00		0.42
Lane Grp Cap(c), veh/h	97	638	650	181	737	772	450	0	455	186	0	185
V/C Ratio(X)	0.42	0.88	0.88	0.84	1.02	1.02	0.77	0.00	0.85	0.23	0.00	0.49
Avail Cap(c_a), veh/h	258	716	729	248	737	772	514	0	520	353	0	351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.5	30.6	30.8	46.4	30.3	30.3	36.3	0.0	37.6	43.3	0.0	45.0
Incr Delay (d2), s/veh	1.1	10.0	9.9	12.2	37.6	37.2	5.3	0.0	10.6	0.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	17.0	17.3	5.0	29.2	30.5	10.1	0.0	12.2	1.1	0.0	2.5
LnGrp Delay(d),s/veh	49.6	40.7	40.7	58.7	67.9	67.5	41.6	0.0	48.2	43.6	0.0	45.7
LnGrp LOS	D	D	D	E	F	F	D		D	D		D
Approach Vol, veh/h		1169			1687			736			132	
Approach Delay, s/veh		41.0			66.9			45.1			45.0	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	50.7		31.0	15.7	45.1		14.7
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	16.0	44.0		30.0	16.0	44.0		20.0
Max Q Clear Time (g_c+I1), s	4.5	47.8		24.7	11.6	35.0		7.3
Green Ext Time (p_c), s	0.0	0.0		1.4	0.1	4.1		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	53.7
HCM 2010 LOS	D

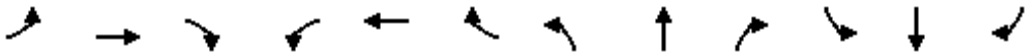
Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	722	122	225	1490	0	0	0	0	224	580	400
Future Volume (vph)	0	722	122	225	1490	0	0	0	0	224	580	400
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	11	12	12	12	12	12	13	12	13
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.98		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3192		1605	3353					1716	3307	1524
Flt Permitted		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3192		1605	3353					1716	3307	1524
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	737	124	230	1520	0	0	0	0	229	592	408
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	0	0	0	53
Lane Group Flow (vph)	0	847	0	230	1520	0	0	0	0	229	592	355
Confl. Peds. (#/hr)			3	3					1			4
Heavy Vehicles (%)	0%	4%	5%	3%	2%	0%	2%	2%	2%	3%	3%	2%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	2	0
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		5		6	2						4	
Permitted Phases										4		4
Actuated Green, G (s)		37.7		20.1	62.7					27.8	27.8	27.8
Effective Green, g (s)		38.6		21.0	63.6					28.4	28.4	28.4
Actuated g/C Ratio		0.39		0.21	0.64					0.28	0.28	0.28
Clearance Time (s)		4.9		4.9	4.9					4.6	4.6	4.6
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1232		337	2132					487	939	432
v/s Ratio Prot		0.27		0.14	c0.45						0.18	
v/s Ratio Perm										0.13		c0.23
v/c Ratio		0.69		0.68	0.71					0.47	0.63	0.82
Uniform Delay, d1		25.7		36.4	12.1					29.6	31.2	33.4
Progression Factor		1.00		0.82	0.43					0.89	0.90	0.89
Incremental Delay, d2		3.1		1.8	0.8					0.7	1.3	11.6
Delay (s)		28.8		31.6	6.1					27.0	29.5	41.3
Level of Service		C		C	A					C	C	D
Approach Delay (s)		28.8			9.5			0.0			32.9	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	331	956	0	0	1086	222	422	933	176	0	0	0
Future Volume (vph)	331	956	0	0	1086	222	422	933	176	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0				
Lane Util. Factor	1.00	0.95			0.95		0.86	0.86				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.97		1.00	0.98				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1621	3288			3257		1454	4468				
Flt Permitted	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	1621	3288			3257		1454	4468				
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	341	986	0	0	1120	229	435	962	181	0	0	0
RTOR Reduction (vph)	0	0	0	0	17	0	0	23	0	0	0	0
Lane Group Flow (vph)	341	986	0	0	1332	0	387	1168	0	0	0	0
Confl. Peds. (#/hr)			2			4	1					1
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	2%	4%	0%	0%	2%	2%	1%	1%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	4	0	0	0	0	0	0
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	2	6			1			4				
Permitted Phases							4					
Actuated Green, G (s)	20.1	63.1			38.1		27.4	27.4				
Effective Green, g (s)	21.0	64.0			39.0		28.0	28.0				
Actuated g/C Ratio	0.21	0.64			0.39		0.28	0.28				
Clearance Time (s)	4.9	4.9			4.9		4.6	4.6				
Vehicle Extension (s)	2.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	340	2104			1270		407	1251				
v/s Ratio Prot	c0.21	0.30			c0.41							
v/s Ratio Perm							c0.27	0.26				
v/c Ratio	1.00	0.47			1.05		0.95	0.93				
Uniform Delay, d1	39.5	9.3			30.5		35.3	35.1				
Progression Factor	1.16	1.04			1.00		1.00	1.00				
Incremental Delay, d2	47.1	0.7			39.1		32.1	12.6				
Delay (s)	92.9	10.3			69.6		67.4	47.7				
Level of Service	F	B			E		E	D				
Approach Delay (s)		31.5			69.6			52.6			0.0	
Approach LOS		C			E			D			A	

Intersection Summary			
HCM 2000 Control Delay	51.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		
Description: Count Date 7/20/09			

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	1	95	155	47	24	1
Future Vol, veh/h	1	95	155	47	24	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	103	168	51	26	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	220	0	-	0	299	194
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	105	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1349	-	-	-	692	847
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	919	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1349	-	-	-	691	847
Mov Cap-2 Maneuver	-	-	-	-	713	-
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	918	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1349	-	-	-	718
HCM Lane V/C Ratio	0.001	-	-	-	0.038
HCM Control Delay (s)	7.7	-	-	-	10.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	116	3	7	199	70	3	1	17	36	1	1
Future Vol, veh/h	1	116	3	7	199	70	3	1	17	36	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	122	3	7	209	74	3	1	18	38	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	283	0	0	125	0	0	388	424	124	396	388	246
Stage 1	-	-	-	-	-	-	126	126	-	261	261	-
Stage 2	-	-	-	-	-	-	262	298	-	135	127	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1279	-	-	1462	-	-	571	522	927	564	547	793
Stage 1	-	-	-	-	-	-	878	792	-	744	692	-
Stage 2	-	-	-	-	-	-	743	667	-	868	791	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1279	-	-	1462	-	-	567	519	927	550	544	793
Mov Cap-2 Maneuver	-	-	-	-	-	-	567	519	-	550	544	-
Stage 1	-	-	-	-	-	-	877	791	-	743	689	-
Stage 2	-	-	-	-	-	-	737	664	-	849	790	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	9.5	12
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	822	1279	-	-	1462	-	-	554
HCM Lane V/C Ratio	0.027	0.001	-	-	0.005	-	-	0.072
HCM Control Delay (s)	9.5	7.8	-	-	7.5	-	-	12
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	26	57	182	14	21	13	178	144	31	388	3
Future Volume (veh/h)	5	26	57	182	14	21	13	178	144	31	388	3
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1800	1800	1748	1800	1800	1800	1800	1872	1800	1782	1872
Adj Flow Rate, veh/h	7	36	78	249	19	29	18	244	197	42	532	4
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	0	0	0	3	0	0	0	0	0	0	1	0
Cap, veh/h	415	130	283	345	166	253	454	944	834	611	966	863
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.03	0.52	0.52	0.05	0.54	0.54
Sat Flow, veh/h	1367	504	1091	1252	640	977	1714	1800	1591	1714	1782	1591
Grp Volume(v), veh/h	7	0	114	249	0	48	18	244	197	42	532	4
Grp Sat Flow(s),veh/h/ln	1367	0	1595	1252	0	1616	1714	1800	1591	1714	1782	1591
Q Serve(g_s), s	0.3	0.0	4.5	15.5	0.0	1.8	0.4	5.8	5.2	0.8	15.2	0.1
Cycle Q Clear(g_c), s	2.1	0.0	4.5	19.9	0.0	1.8	0.4	5.8	5.2	0.8	15.2	0.1
Prop In Lane	1.00		0.68	1.00		0.60	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	415	0	413	345	0	419	454	944	834	611	966	863
V/C Ratio(X)	0.02	0.00	0.28	0.72	0.00	0.11	0.04	0.26	0.24	0.07	0.55	0.00
Avail Cap(c_a), veh/h	415	0	413	345	0	419	638	944	834	765	966	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	0.0	23.1	31.0	0.0	22.1	9.0	10.2	10.1	7.5	11.7	8.2
Incr Delay (d2), s/veh	0.0	0.0	0.4	7.2	0.0	0.1	0.0	0.7	0.7	0.0	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.0	6.0	0.0	0.8	0.2	3.0	2.5	0.4	8.0	0.0
LnGrp Delay(d),s/veh	22.9	0.0	23.5	38.2	0.0	22.2	9.0	10.9	10.7	7.5	13.9	8.2
LnGrp LOS	C		C	D		C	A	B	B	A	B	A
Approach Vol, veh/h		121			297			459			578	
Approach Delay, s/veh		23.4			35.6			10.7			13.4	
Approach LOS		C			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	45.0		25.0	6.6	46.4		25.0
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.8	7.8		21.9	2.4	17.2		6.5
Green Ext Time (p_c), s	0.0	7.3		0.0	0.0	6.7		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	17.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	76	410	256	35	40	101	131	93	34	573	44
Future Volume (veh/h)	57	76	410	256	35	40	101	131	93	34	573	44
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1652	1685	1543	1605	1543	1543	1543	1620
Adj Flow Rate, veh/h	62	83	446	278	38	43	110	142	101	37	623	48
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	507	471	399	514	282	319	267	547	446	421	845	65
Arrive On Green	0.05	0.30	0.30	0.15	0.40	0.39	0.08	0.34	0.34	0.04	0.31	0.31
Sat Flow, veh/h	1513	1588	1343	1513	707	800	1469	1605	1310	1469	2757	212
Grp Volume(v), veh/h	62	83	446	278	0	81	110	142	101	37	331	340
Grp Sat Flow(s),veh/h/ln	1513	1588	1343	1513	0	1507	1469	1605	1310	1469	1466	1504
Q Serve(g_s), s	2.4	3.4	26.0	10.4	0.0	3.0	4.2	5.6	4.8	1.5	17.7	17.8
Cycle Q Clear(g_c), s	2.4	3.4	26.0	10.4	0.0	3.0	4.2	5.6	4.8	1.5	17.7	17.8
Prop In Lane	1.00		1.00	1.00		0.53	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	507	471	399	514	0	600	267	547	446	421	449	461
V/C Ratio(X)	0.12	0.18	1.12	0.54	0.00	0.13	0.41	0.26	0.23	0.09	0.74	0.74
Avail Cap(c_a), veh/h	716	471	399	569	0	600	435	751	613	639	686	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	22.9	30.8	15.3	0.0	16.8	19.3	20.9	20.6	19.0	27.2	27.2
Incr Delay (d2), s/veh	0.1	0.2	81.5	0.9	0.0	0.1	1.0	0.4	0.4	0.1	3.4	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.5	18.6	4.4	0.0	1.3	1.8	2.5	1.8	0.6	7.6	7.8
LnGrp Delay(d),s/veh	19.6	23.0	112.3	16.1	0.0	16.9	20.3	21.2	21.0	19.1	30.6	30.5
LnGrp LOS	B	C	F	B		B	C	C	C	B	C	C
Approach Vol, veh/h		591			359			353			708	
Approach Delay, s/veh		90.0			16.3			20.9			30.0	
Approach LOS		F			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	33.9	7.9	38.9	10.0	30.8	16.8	30.0
Change Period (Y+Rc), s	4.0	4.9	4.0	4.5	4.0	4.9	4.0	4.5
Max Green Setting (Gmax), s	16.0	40.1	16.0	25.5	16.0	40.1	16.0	25.5
Max Q Clear Time (g_c+I1), s	3.5	7.6	4.4	5.0	6.2	19.8	12.4	28.0
Green Ext Time (p_c), s	0.0	6.5	0.1	2.9	0.2	5.7	0.4	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	43.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1	144	1	2	5	38	412	1	4	1138	81
Future Volume (veh/h)	36	1	144	1	2	5	38	412	1	4	1138	81
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1765	1765	1800	1765	1765	1714	1714	1714	1714	1714	1714
Adj Flow Rate, veh/h	40	1	160	1	2	6	42	458	1	4	1264	90
Adj No. of Lanes	0	1	1	0	1	1	1	1	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	347	7	234	140	206	232	138	1184	1005	659	1184	1003
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.69	0.69	0.69	0.69	0.69	0.69
Sat Flow, veh/h	1349	45	1500	309	1318	1486	389	1714	1455	902	1714	1453
Grp Volume(v), veh/h	41	0	160	3	0	6	42	458	1	4	1264	90
Grp Sat Flow(s),veh/h/ln	1394	0	1500	1627	0	1486	389	1714	1455	902	1714	1453
Q Serve(g_s), s	1.3	0.0	5.3	0.0	0.0	0.2	0.0	5.9	0.0	0.1	36.0	1.1
Cycle Q Clear(g_c), s	1.3	0.0	5.3	0.1	0.0	0.2	36.0	5.9	0.0	6.0	36.0	1.1
Prop In Lane	0.98		1.00	0.33		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	354	0	234	346	0	232	138	1184	1005	659	1184	1003
V/C Ratio(X)	0.12	0.00	0.68	0.01	0.00	0.03	0.30	0.39	0.00	0.01	1.07	0.09
Avail Cap(c_a), veh/h	832	0	748	872	0	741	138	1184	1005	659	1184	1003
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.1	0.0	20.8	18.6	0.0	18.6	26.1	3.4	2.5	4.7	8.1	2.7
Incr Delay (d2), s/veh	0.1	0.0	3.5	0.0	0.0	0.0	5.6	1.0	0.0	0.0	46.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	2.4	0.0	0.0	0.1	0.8	3.0	0.0	0.0	31.7	0.5
LnGrp Delay(d),s/veh	19.3	0.0	24.3	18.6	0.0	18.7	31.7	4.4	2.5	4.7	54.3	2.8
LnGrp LOS	B		C	B		B	C	A	A	A	F	A
Approach Vol, veh/h		201			9			501			1358	
Approach Delay, s/veh		23.3			18.7			6.6			50.8	
Approach LOS		C			B			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		12.1		40.0		12.1
Change Period (Y+Rc), s		4.9		* 4.2		4.9		* 4.2
Max Green Setting (Gmax), s		35.1		* 26		35.1		* 26
Max Q Clear Time (g_c+I1), s		38.0		2.2		38.0		7.3
Green Ext Time (p_c), s		0.0		0.9		0.0		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	37.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	90	530	337	348	1483	73
Future Volume (veh/h)	90	530	337	348	1483	73
Number	1	6	2	12	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.99	1.00	1.00
Adj Sat Flow, veh/h/ln	1714	1714	1714	1714	1714	1800
Adj Flow Rate, veh/h	100	589	374	0	1648	0
Adj No. of Lanes	1	2	2	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	5	5	5	5	5	0
Cap, veh/h	397	1144	1144	508	1620	733
Arrive On Green	0.35	0.35	0.35	0.00	0.50	0.00
Sat Flow, veh/h	974	3343	3343	1445	3265	1530
Grp Volume(v), veh/h	100	589	374	0	1648	0
Grp Sat Flow(s),veh/h/ln	974	1629	1629	1445	1633	1530
Q Serve(g_s), s	4.4	7.5	4.4	0.0	26.0	0.0
Cycle Q Clear(g_c), s	8.8	7.5	4.4	0.0	26.0	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	397	1144	1144	508	1620	733
V/C Ratio(X)	0.25	0.52	0.33	0.00	1.02	0.00
Avail Cap(c_a), veh/h	724	2238	2238	993	1620	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	15.7	13.5	12.5	0.0	13.2	0.0
Incr Delay (d2), s/veh	0.4	0.4	0.2	0.0	26.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.4	2.0	0.0	17.5	0.0
LnGrp Delay(d),s/veh	16.1	13.9	12.7	0.0	39.9	0.0
LnGrp LOS	B	B	B		F	
Approach Vol, veh/h		689	374		1648	
Approach Delay, s/veh		14.2	12.7		39.9	
Approach LOS		B	B		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		22.4				22.4		30.0
Change Period (Y+Rc), s		4.9				4.9		4.9
Max Green Setting (Gmax), s		35.1				35.1		25.1
Max Q Clear Time (g_c+I1), s		6.4				10.8		28.0
Green Ext Time (p_c), s		7.0				6.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.6
HCM 2010 LOS	C

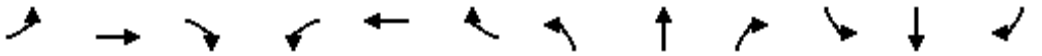
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	1506	214	157	621	28	170	24	101	80	117	34
Future Volume (veh/h)	32	1506	214	157	621	28	170	24	101	80	117	34
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1767	1800	1731	1800	1800	1800	1833	1872	1800	1872	1872
Adj Flow Rate, veh/h	34	1619	230	169	668	30	159	60	109	86	126	37
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	4	0	0	0	0	0	0	0	0
Cap, veh/h	444	1391	194	221	1682	76	270	90	164	242	195	57
Arrive On Green	0.06	0.47	0.46	0.09	0.50	0.49	0.16	0.16	0.14	0.14	0.14	0.12
Sat Flow, veh/h	1714	2959	412	1648	3334	150	1714	573	1041	1714	1380	405
Grp Volume(v), veh/h	34	905	944	169	342	356	159	0	169	86	0	163
Grp Sat Flow(s),veh/h/ln	1714	1679	1693	1648	1710	1773	1714	0	1614	1714	0	1785
Q Serve(g_s), s	1.1	50.4	50.4	6.2	13.3	13.3	9.2	0.0	10.6	4.9	0.0	9.3
Cycle Q Clear(g_c), s	1.1	50.4	50.4	6.2	13.3	13.3	9.2	0.0	10.6	4.9	0.0	9.3
Prop In Lane	1.00		0.24	1.00		0.08	1.00		0.64	1.00		0.23
Lane Grp Cap(c), veh/h	444	789	796	221	863	895	270	0	254	242	0	252
V/C Ratio(X)	0.08	1.15	1.19	0.77	0.40	0.40	0.59	0.00	0.66	0.36	0.00	0.65
Avail Cap(c_a), veh/h	524	789	796	236	863	895	430	0	405	350	0	365
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.4	28.4	28.6	27.3	16.5	16.5	41.9	0.0	43.1	41.6	0.0	43.7
Incr Delay (d2), s/veh	0.0	80.5	96.5	11.4	0.1	0.1	0.8	0.0	1.1	0.3	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	40.9	44.8	5.5	6.3	6.6	4.4	0.0	4.8	2.3	0.0	4.7
LnGrp Delay(d),s/veh	13.4	108.9	125.1	38.7	16.6	16.6	42.7	0.0	44.2	42.0	0.0	44.8
LnGrp LOS	B	F	F	D	B	B	D		D	D		D
Approach Vol, veh/h		1883			867			328			249	
Approach Delay, s/veh		115.3			20.9			43.5			43.8	
Approach LOS		F			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	59.0		20.0	14.0	55.0		18.2
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	11.0	49.0		25.0	11.0	49.0		20.0
Max Q Clear Time (g_c+I1), s	3.1	15.3		12.6	8.2	52.4		11.3
Green Ext Time (p_c), s	0.0	9.1		0.8	0.1	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	78.3
HCM 2010 LOS	E

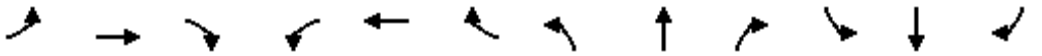
Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1004	247	111	574	0	0	0	0	322	697	415
Future Volume (vph)	0	1004	247	111	574	0	0	0	0	322	697	415
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	11	12	12	12	12	12	13	12	13
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3162		1605	3353					1716	3307	1523
Flt Permitted		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3162		1605	3353					1716	3307	1523
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	1080	266	119	617	0	0	0	0	346	749	446
RTOR Reduction (vph)	0	22	0	0	0	0	0	0	0	0	0	162
Lane Group Flow (vph)	0	1324	0	119	617	0	0	0	0	346	749	284
Confl. Peds. (#/hr)			3	3					1			4
Heavy Vehicles (%)	0%	4%	5%	3%	2%	0%	2%	2%	2%	3%	3%	2%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	2	0
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		5		6	2						4	
Permitted Phases										4		4
Actuated Green, G (s)		37.6		9.1	51.6					28.9	28.9	28.9
Effective Green, g (s)		38.5		10.0	52.5					29.5	29.5	29.5
Actuated g/C Ratio		0.43		0.11	0.58					0.33	0.33	0.33
Clearance Time (s)		4.9		4.9	4.9					4.6	4.6	4.6
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1352		178	1955					562	1083	499
v/s Ratio Prot		c0.42		c0.07	0.18						c0.23	
v/s Ratio Perm										0.20		0.19
v/c Ratio		0.98		0.67	0.32					0.62	0.69	0.57
Uniform Delay, d1		25.4		38.4	9.6					25.5	26.3	25.0
Progression Factor		1.00		0.95	0.44					0.84	0.86	0.78
Incremental Delay, d2		20.0		6.9	0.4					1.9	1.8	1.4
Delay (s)		45.3		43.2	4.6					23.4	24.4	20.9
Level of Service		D		D	A					C	C	C
Approach Delay (s)		45.3			10.9			0.0			23.2	
Approach LOS		D			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	276	1250	0	0	445	83	26	490	149	0	0	0
Future Volume (vph)	276	1250	0	0	445	83	26	490	149	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0				
Lane Util. Factor	1.00	0.95			0.95		0.86	0.86				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.98		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1621	3288			3264		1454	4413				
Flt Permitted	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	1621	3288			3264		1454	4413				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	297	1344	0	0	478	89	28	527	160	0	0	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	44	0	0	0	0
Lane Group Flow (vph)	297	1344	0	0	552	0	25	646	0	0	0	0
Confl. Peds. (#/hr)			2			4	1					1
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	2%	4%	0%	0%	2%	2%	1%	1%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	4	0	0	0	0	0	0
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	2	6			1			4				
Permitted Phases							4					
Actuated Green, G (s)	24.1	60.4			31.4		20.1	20.1				
Effective Green, g (s)	25.0	61.3			32.3		20.7	20.7				
Actuated g/C Ratio	0.28	0.68			0.36		0.23	0.23				
Clearance Time (s)	4.9	4.9			4.9		4.6	4.6				
Vehicle Extension (s)	2.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	450	2239			1171		334	1014				
v/s Ratio Prot	0.18	c0.41			0.17							
v/s Ratio Perm							0.02	0.15				
v/c Ratio	0.66	0.60			0.47		0.07	0.64				
Uniform Delay, d1	28.7	7.7			22.3		27.1	31.3				
Progression Factor	0.86	0.53			1.00		1.00	1.00				
Incremental Delay, d2	1.8	0.8			1.4		0.1	1.3				
Delay (s)	26.6	4.9			23.6		27.2	32.6				
Level of Service	C	A			C		C	C				
Approach Delay (s)		8.8			23.6			32.4			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		
Description: Count Date 7/20/09			

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	1	173	54	20	99	2
Future Vol, veh/h	1	173	54	20	99	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	234	73	27	134	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	322	86
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	236	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1493	-	-	-	672	973
Stage 1	-	-	-	-	937	-
Stage 2	-	-	-	-	803	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1493	-	-	-	672	973
Mov Cap-2 Maneuver	-	-	-	-	693	-
Stage 1	-	-	-	-	937	-
Stage 2	-	-	-	-	802	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1493	-	-	-	697
HCM Lane V/C Ratio	0.001	-	-	-	0.196
HCM Control Delay (s)	7.4	-	-	-	11.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	271	1	6	71	31	2	1	13	149	1	2
Future Vol, veh/h	1	271	1	6	71	31	2	1	13	149	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	366	1	8	96	42	3	1	18	201	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	138	0	0	368	0	0	505	524	367	512	503	117
Stage 1	-	-	-	-	-	-	370	370	-	133	133	-
Stage 2	-	-	-	-	-	-	135	154	-	379	370	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1446	-	-	1191	-	-	478	458	678	472	471	935
Stage 1	-	-	-	-	-	-	650	620	-	870	786	-
Stage 2	-	-	-	-	-	-	868	770	-	643	620	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1446	-	-	1191	-	-	473	455	678	456	468	935
Mov Cap-2 Maneuver	-	-	-	-	-	-	473	455	-	456	468	-
Stage 1	-	-	-	-	-	-	650	620	-	869	781	-
Stage 2	-	-	-	-	-	-	858	765	-	625	620	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	11	19
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	625	1446	-	-	1191	-	-	459
HCM Lane V/C Ratio	0.035	0.001	-	-	0.007	-	-	0.448
HCM Control Delay (s)	11	7.5	-	-	8	-	-	19
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	24	52	2	5	48	450	114	11	292	6
Future Volume (veh/h)	1	1	24	52	2	5	48	450	114	11	292	6
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1800	1800	1748	1800	1800	1800	1800	1872	1800	1782	1872
Adj Flow Rate, veh/h	1	1	26	56	2	5	52	484	123	12	314	6
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	3	0	0	0	0	0	0	1	0
Cap, veh/h	299	8	205	274	63	158	772	1149	1016	573	1082	966
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.06	0.64	0.64	0.03	0.61	0.61
Sat Flow, veh/h	1406	56	1457	1342	451	1127	1714	1800	1591	1714	1782	1591
Grp Volume(v), veh/h	1	0	27	56	0	7	52	484	123	12	314	6
Grp Sat Flow(s),veh/h/ln	1406	0	1513	1342	0	1578	1714	1800	1591	1714	1782	1591
Q Serve(g_s), s	0.0	0.0	1.1	2.6	0.0	0.3	0.7	9.0	2.0	0.2	5.7	0.1
Cycle Q Clear(g_c), s	0.3	0.0	1.1	3.6	0.0	0.3	0.7	9.0	2.0	0.2	5.7	0.1
Prop In Lane	1.00		0.96	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	299	0	212	274	0	222	772	1149	1016	573	1082	966
V/C Ratio(X)	0.00	0.00	0.13	0.20	0.00	0.03	0.07	0.42	0.12	0.02	0.29	0.01
Avail Cap(c_a), veh/h	523	0	454	488	0	473	947	1149	1016	802	1082	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	0.0	25.4	26.9	0.0	25.1	4.1	6.0	4.8	4.9	6.3	5.2
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.4	0.0	0.1	0.0	1.1	0.2	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.5	1.0	0.0	0.1	0.3	4.8	1.0	0.1	2.9	0.0
LnGrp Delay(d),s/veh	25.1	0.0	25.7	27.3	0.0	25.1	4.1	7.2	5.0	4.9	7.0	5.2
LnGrp LOS	C		C	C		C	A	A	A	A	A	A
Approach Vol, veh/h		28			63			659			332	
Approach Delay, s/veh		25.7			27.1			6.5			6.9	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	47.1		14.3	8.1	45.0		14.3
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	11.0		5.6	2.7	7.7		3.1
Green Ext Time (p_c), s	0.0	6.6		0.3	0.0	6.8		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	67	229	153	76	64	339	330	374	52	264	58
Future Volume (veh/h)	97	67	229	153	76	64	339	330	374	52	264	58
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1652	1685	1543	1605	1543	1543	1543	1620
Adj Flow Rate, veh/h	105	73	249	166	83	70	368	359	407	57	287	63
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	416	373	315	449	223	188	537	658	537	322	619	134
Arrive On Green	0.08	0.24	0.24	0.11	0.27	0.26	0.21	0.41	0.41	0.06	0.26	0.26
Sat Flow, veh/h	1513	1588	1341	1513	827	697	1469	1605	1310	1469	2395	518
Grp Volume(v), veh/h	105	73	249	166	0	153	368	359	407	57	174	176
Grp Sat Flow(s),veh/h/ln	1513	1588	1341	1513	0	1524	1469	1605	1310	1469	1466	1447
Q Serve(g_s), s	4.0	2.9	13.7	6.2	0.0	6.4	13.3	13.3	20.8	2.2	7.8	8.1
Cycle Q Clear(g_c), s	4.0	2.9	13.7	6.2	0.0	6.4	13.3	13.3	20.8	2.2	7.8	8.1
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h	416	373	315	449	0	410	537	658	537	322	379	374
V/C Ratio(X)	0.25	0.20	0.79	0.37	0.00	0.37	0.69	0.55	0.76	0.18	0.46	0.47
Avail Cap(c_a), veh/h	617	527	445	598	0	506	548	839	686	555	767	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	24.0	28.2	18.0	0.0	23.4	14.6	17.6	19.8	19.1	24.5	24.5
Incr Delay (d2), s/veh	0.3	0.3	6.2	0.5	0.0	0.6	3.5	1.0	4.4	0.3	1.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.3	5.6	2.6	0.0	2.7	5.8	6.1	8.1	0.9	3.3	3.4
LnGrp Delay(d),s/veh	20.3	24.3	34.4	18.5	0.0	23.9	18.0	18.6	24.2	19.4	25.7	25.9
LnGrp LOS	C	C	C	B		C	B	B	C	B	C	C
Approach Vol, veh/h		427			319			1134			407	
Approach Delay, s/veh		29.2			21.1			20.4			24.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	36.1	9.6	25.1	19.4	24.3	12.3	22.4
Change Period (Y+Rc), s	4.0	4.9	4.0	4.5	4.0	4.9	4.0	4.5
Max Green Setting (Gmax), s	16.0	40.1	16.0	25.5	16.0	40.1	16.0	25.5
Max Q Clear Time (g_c+I1), s	4.2	22.8	6.0	8.4	15.3	10.1	8.2	15.7
Green Ext Time (p_c), s	0.1	6.9	0.2	2.0	0.1	8.5	0.3	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	2	72	1	2	9	152	1271	1	6	569	81
Future Volume (veh/h)	22	2	72	1	2	9	152	1271	1	6	569	81
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1765	1765	1800	1765	1765	1714	1714	1714	1714	1714	1714
Adj Flow Rate, veh/h	23	2	77	1	2	10	162	1352	1	6	605	86
Adj No. of Lanes	0	1	1	0	1	1	1	1	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	5	5	5
Cap, veh/h	384	28	303	160	260	302	468	1119	950	131	1119	948
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	1278	139	1500	358	1284	1490	727	1714	1455	390	1714	1453
Grp Volume(v), veh/h	25	0	77	3	0	10	162	1352	1	6	605	86
Grp Sat Flow(s),veh/h/ln	1416	0	1500	1642	0	1490	727	1714	1455	390	1714	1453
Q Serve(g_s), s	0.6	0.0	2.4	0.0	0.0	0.3	8.5	36.0	0.0	0.0	10.4	1.2
Cycle Q Clear(g_c), s	0.7	0.0	2.4	0.1	0.0	0.3	18.9	36.0	0.0	36.0	10.4	1.2
Prop In Lane	0.92		1.00	0.33		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	412	0	303	419	0	302	468	1119	950	131	1119	948
V/C Ratio(X)	0.06	0.00	0.25	0.01	0.00	0.03	0.35	1.21	0.00	0.05	0.54	0.09
Avail Cap(c_a), veh/h	791	0	707	845	0	703	468	1119	950	131	1119	948
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	18.5	17.6	0.0	17.7	10.2	9.6	3.3	27.6	5.1	3.5
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.0	0.0	0.0	2.0	102.3	0.0	0.7	1.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.0	0.0	0.0	0.1	1.9	48.3	0.0	0.1	5.5	0.5
LnGrp Delay(d),s/veh	17.9	0.0	18.9	17.6	0.0	17.7	12.3	111.9	3.3	28.2	7.0	3.7
LnGrp LOS	B		B	B		B	B	F	A	C	A	A
Approach Vol, veh/h		102			13			1515			697	
Approach Delay, s/veh		18.7			17.7			101.2			6.8	
Approach LOS		B			B			F			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		15.2		40.0		15.2
Change Period (Y+Rc), s		4.9		* 4.2		4.9		* 4.2
Max Green Setting (Gmax), s		35.1		* 26		35.1		* 26
Max Q Clear Time (g_c+I1), s		38.0		2.3		38.0		4.4
Green Ext Time (p_c), s		0.0		0.4		0.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	68.8
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	178	465	644	1375	635	97
Future Volume (veh/h)	178	465	644	1375	635	97
Number	1	6	2	12	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.99	1.00	1.00
Adj Sat Flow, veh/h/ln	1714	1714	1714	1714	1714	1800
Adj Flow Rate, veh/h	189	495	685	0	676	0
Adj No. of Lanes	1	2	2	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	0
Cap, veh/h	450	1787	1787	793	979	432
Arrive On Green	0.55	0.55	0.55	0.00	0.30	0.00
Sat Flow, veh/h	731	3343	3343	1445	3265	1530
Grp Volume(v), veh/h	189	495	685	0	676	0
Grp Sat Flow(s),veh/h/ln	731	1629	1629	1445	1633	1530
Q Serve(g_s), s	10.5	4.3	6.3	0.0	9.6	0.0
Cycle Q Clear(g_c), s	16.8	4.3	6.3	0.0	9.6	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	450	1787	1787	793	979	432
V/C Ratio(X)	0.42	0.28	0.38	0.00	0.69	0.00
Avail Cap(c_a), veh/h	617	2533	2533	1124	1920	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	11.6	6.3	6.8	0.0	16.3	0.0
Incr Delay (d2), s/veh	0.8	0.1	0.2	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.9	2.8	0.0	4.4	0.0
LnGrp Delay(d),s/veh	12.4	6.4	7.0	0.0	17.2	0.0
LnGrp LOS	B	A	A		B	
Approach Vol, veh/h		684	685		676	
Approach Delay, s/veh		8.1	7.0		17.2	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		32.9				32.9		19.8
Change Period (Y+Rc), s		4.9				4.9		4.9
Max Green Setting (Gmax), s		40.1				40.1		30.1
Max Q Clear Time (g_c+I1), s		8.3				18.8		11.6
Green Ext Time (p_c), s		10.8				9.2		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1003	111	145	1498	18	442	111	128	40	50	39
Future Volume (veh/h)	41	1003	111	145	1498	18	442	111	128	40	50	39
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1766	1800	1731	1800	1800	1800	1851	1872	1800	1872	1872
Adj Flow Rate, veh/h	43	1045	116	151	1560	19	354	264	133	42	52	41
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	4	0	0	0	0	0	0	0	0
Cap, veh/h	95	1154	128	180	1487	18	455	306	154	188	104	82
Arrive On Green	0.06	0.38	0.37	0.11	0.43	0.42	0.27	0.27	0.25	0.11	0.11	0.09
Sat Flow, veh/h	1714	3046	338	1648	3460	42	1714	1155	582	1714	951	750
Grp Volume(v), veh/h	43	575	586	151	770	809	354	0	397	42	0	93
Grp Sat Flow(s),veh/h/ln	1714	1678	1706	1648	1710	1792	1714	0	1737	1714	0	1701
Q Serve(g_s), s	2.6	35.0	35.1	9.7	46.5	46.5	20.7	0.0	23.6	2.4	0.0	5.6
Cycle Q Clear(g_c), s	2.6	35.0	35.1	9.7	46.5	46.5	20.7	0.0	23.6	2.4	0.0	5.6
Prop In Lane	1.00		0.20	1.00		0.02	1.00		0.34	1.00		0.44
Lane Grp Cap(c), veh/h	95	636	646	180	735	770	455	0	461	188	0	186
V/C Ratio(X)	0.45	0.91	0.91	0.84	1.05	1.05	0.78	0.00	0.86	0.22	0.00	0.50
Avail Cap(c_a), veh/h	254	705	716	244	735	770	506	0	513	347	0	345
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.4	31.7	31.9	47.2	30.8	30.8	36.8	0.0	38.1	43.9	0.0	45.7
Incr Delay (d2), s/veh	1.2	13.6	13.5	13.1	46.4	46.2	5.9	0.0	11.9	0.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	18.5	18.9	5.1	31.3	32.8	10.5	0.0	12.8	1.2	0.0	2.7
LnGrp Delay(d),s/veh	50.7	45.3	45.4	60.3	77.3	77.0	42.6	0.0	50.0	44.1	0.0	46.5
LnGrp LOS	D	D	D	E	F	F	D		D	D		D
Approach Vol, veh/h		1204			1730			751			135	
Approach Delay, s/veh		45.6			75.7			46.6			45.8	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	51.4		31.8	15.8	45.5		15.0
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	16.0	44.0		30.0	16.0	44.0		20.0
Max Q Clear Time (g_c+I1), s	4.6	48.5		25.6	11.7	37.1		7.6
Green Ext Time (p_c), s	0.0	0.0		1.2	0.1	2.4		0.3

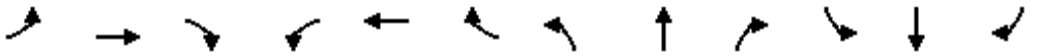
Intersection Summary	
HCM 2010 Ctrl Delay	59.4
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	736	127	225	1524	0	0	0	0	224	580	406
Future Volume (vph)	0	736	127	225	1524	0	0	0	0	224	580	406
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	11	12	12	12	12	12	13	12	13
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	1.00
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.98		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3190		1605	3353					1716	3307	1524
Flt Permitted		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3190		1605	3353					1716	3307	1524
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	751	130	230	1555	0	0	0	0	229	592	414
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	0	0	0	53
Lane Group Flow (vph)	0	867	0	230	1555	0	0	0	0	229	592	361
Confl. Peds. (#/hr)			3	3					1			4
Heavy Vehicles (%)	0%	4%	5%	3%	2%	0%	2%	2%	2%	3%	3%	2%
Bus Blockages (#/hr)	0	2	0	0	0	0	0	0	0	0	2	0
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		5		6	2						4	
Permitted Phases										4		4
Actuated Green, G (s)		37.6		20.1	62.6					27.9	27.9	27.9
Effective Green, g (s)		38.5		21.0	63.5					28.5	28.5	28.5
Actuated g/C Ratio		0.38		0.21	0.64					0.28	0.28	0.28
Clearance Time (s)		4.9		4.9	4.9					4.6	4.6	4.6
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1228		337	2129					489	942	434
v/s Ratio Prot		0.27		0.14	c0.46						0.18	
v/s Ratio Perm										0.13		c0.24
v/c Ratio		0.71		0.68	0.73					0.47	0.63	0.83
Uniform Delay, d1		26.0		36.4	12.4					29.5	31.1	33.5
Progression Factor		1.00		0.81	0.44					0.88	0.90	0.88
Incremental Delay, d2		3.4		1.7	0.8					0.7	1.3	12.4
Delay (s)		29.4		31.4	6.3					26.8	29.2	42.0
Level of Service		C		C	A					C	C	D
Approach Delay (s)		29.4			9.6			0.0			33.0	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	971	0	0	1111	222	431	933	176	0	0	0
Future Volume (vph)	335	971	0	0	1111	222	431	933	176	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0				
Lane Util. Factor	1.00	0.95			0.95		0.86	0.86				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.97		1.00	0.98				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1621	3288			3259		1454	4468				
Flt Permitted	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	1621	3288			3259		1454	4468				
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	345	1001	0	0	1145	229	444	962	181	0	0	0
RTOR Reduction (vph)	0	0	0	0	16	0	0	23	0	0	0	0
Lane Group Flow (vph)	345	1001	0	0	1358	0	391	1173	0	0	0	0
Confl. Peds. (#/hr)			2			4	1					1
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	2%	4%	0%	0%	2%	2%	1%	1%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	4	0	0	0	0	0	0
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	2	6			1			4				
Permitted Phases							4					
Actuated Green, G (s)	20.1	63.1			38.1		27.4	27.4				
Effective Green, g (s)	21.0	64.0			39.0		28.0	28.0				
Actuated g/C Ratio	0.21	0.64			0.39		0.28	0.28				
Clearance Time (s)	4.9	4.9			4.9		4.6	4.6				
Vehicle Extension (s)	2.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	340	2104			1271		407	1251				
v/s Ratio Prot	c0.21	0.30			c0.42							
v/s Ratio Perm							c0.27	0.26				
v/c Ratio	1.01	0.48			1.07		0.96	0.94				
Uniform Delay, d1	39.5	9.3			30.5		35.5	35.1				
Progression Factor	1.15	1.02			1.00		1.00	1.00				
Incremental Delay, d2	50.0	0.7			45.6		34.4	13.1				
Delay (s)	95.5	10.2			76.1		69.8	48.2				
Level of Service	F	B			E		E	D				
Approach Delay (s)		32.1			76.1			53.6			0.0	
Approach LOS		C			E			D			A	

Intersection Summary			
HCM 2000 Control Delay	54.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		
Description: Count Date 7/20/09			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	1	96	155	86	46	1
Future Vol, veh/h	1	96	155	86	46	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	104	168	93	50	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	262	0	-	0	322	215
Stage 1	-	-	-	-	215	-
Stage 2	-	-	-	-	107	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1302	-	-	-	672	825
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	917	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1302	-	-	-	671	825
Mov Cap-2 Maneuver	-	-	-	-	697	-
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	916	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1302	-	-	-	699
HCM Lane V/C Ratio	0.001	-	-	-	0.073
HCM Control Delay (s)	7.8	-	-	-	10.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

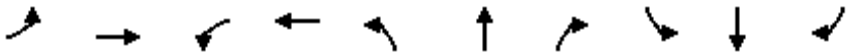
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	138	3	7	238	130	3	1	17	70	1	1
Future Vol, veh/h	1	138	3	7	238	130	3	1	17	70	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	145	3	7	251	137	3	1	18	74	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	148	0	0	484	551	147	492	485	319
Stage 1	-	-	-	-	-	-	149	149	-	334	334	-
Stage 2	-	-	-	-	-	-	335	402	-	158	151	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1171	-	-	1434	-	-	493	442	900	487	482	722
Stage 1	-	-	-	-	-	-	854	774	-	680	643	-
Stage 2	-	-	-	-	-	-	679	600	-	844	772	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1171	-	-	1434	-	-	489	439	900	474	479	722
Mov Cap-2 Maneuver	-	-	-	-	-	-	489	439	-	474	479	-
Stage 1	-	-	-	-	-	-	853	773	-	679	640	-
Stage 2	-	-	-	-	-	-	674	597	-	825	771	-

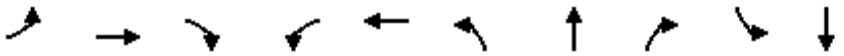
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	9.8	14
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	769	1171	-	-	1434	-	-	476
HCM Lane V/C Ratio	0.029	0.001	-	-	0.005	-	-	0.159
HCM Control Delay (s)	9.8	8.1	-	-	7.5	-	-	14
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.6



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	7	111	234	46	18	192	175	41	497	4
v/c Ratio	0.02	0.22	0.75	0.10	0.04	0.20	0.19	0.06	0.50	0.00
Control Delay	21.6	10.3	42.7	12.9	8.2	13.8	3.1	8.0	16.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	10.3	42.7	12.9	8.2	13.8	3.1	8.0	16.1	0.0
Queue Length 50th (ft)	3	13	113	7	3	51	0	7	111	0
Queue Length 95th (ft)	10	34	151	24	11	90	17	19	235	0
Internal Link Dist (ft)		582		639		1510			2454	
Turn Bay Length (ft)	75		100		110		110	80		125
Base Capacity (vph)	360	521	327	497	548	946	914	742	992	948
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.21	0.72	0.09	0.03	0.20	0.19	0.06	0.50	0.00

Intersection Summary
Description: Northwest TSA



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	34	12	217	201	19	55	152	53	7	661
v/c Ratio	0.07	0.03	0.46	0.38	0.03	0.19	0.24	0.09	0.02	0.68
Control Delay	16.3	29.2	7.8	20.7	19.5	16.8	19.7	1.6	15.8	29.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	29.2	7.8	20.7	19.5	16.8	19.7	1.6	15.8	29.7
Queue Length 50th (ft)	9	5	0	83	5	13	38	0	2	137
Queue Length 95th (ft)	33	22	58	150	23	46	131	8	11	291
Internal Link Dist (ft)		645			932		1282			1510
Turn Bay Length (ft)	115			125		125		125	150	
Base Capacity (vph)	634	623	654	541	658	417	951	802	545	1666
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.02	0.33	0.37	0.03	0.13	0.16	0.07	0.01	0.40

Intersection Summary

Description: Count Date: 6/23/2009
Northwest TSA

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	13	102	5	29	18	367	2	22	949	73
v/c Ratio	0.05	0.30	0.02	0.10	0.07	0.29	0.00	0.03	0.75	0.07
Control Delay	17.7	8.2	17.0	7.9	5.4	5.0	0.0	4.5	13.6	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	8.2	17.0	7.9	5.4	5.0	0.0	4.5	13.6	2.7
Queue Length 50th (ft)	4	3	1	0	1	33	0	2	151	2
Queue Length 95th (ft)	14	32	8	15	12	118	0	12	#584	19
Internal Link Dist (ft)	592		788			1204			76	
Turn Bay Length (ft)		100		75	125		100	125		100
Base Capacity (vph)	665	727	676	683	265	1273	1061	686	1273	1064
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.14	0.01	0.04	0.07	0.29	0.00	0.03	0.75	0.07

Intersection Summary

Description: Count Date 6/3/09

Northwest TSA

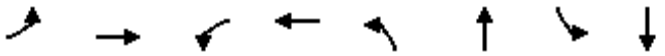
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	SEL
Lane Group Flow (vph)	86	574	366	261	1276
v/c Ratio	0.30	0.54	0.34	0.40	0.80
Control Delay	15.2	15.7	13.3	3.8	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	15.7	13.3	3.8	17.5
Queue Length 50th (ft)	19	72	42	0	139
Queue Length 95th (ft)	45	107	67	35	#360
Internal Link Dist (ft)		1085	1073		1042
Turn Bay Length (ft)	75			255	
Base Capacity (vph)	596	2202	2278	1078	1602
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.26	0.16	0.24	0.80

Intersection Summary

Description: Count Date 6/12/15
Northwest TSA
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

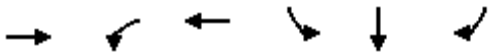


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	1500	165	605	142	146	84	154
v/c Ratio	0.04	0.99	0.74	0.32	0.56	0.45	0.33	0.55
Control Delay	12.9	51.2	44.5	16.3	52.7	21.9	46.2	48.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	51.2	44.5	16.3	52.7	21.9	46.2	48.9
Queue Length 50th (ft)	5	500	62	94	96	33	53	94
Queue Length 95th (ft)	19	#868	#206	217	177	103	107	171
Internal Link Dist (ft)		1154		1366		1768		464
Turn Bay Length (ft)	175		175		150		100	
Base Capacity (vph)	526	1519	227	1896	399	451	353	390
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.99	0.73	0.32	0.36	0.32	0.24	0.39

Intersection Summary

Description: Northwest TSA

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



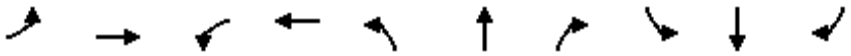
Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1114	116	540	331	724	423
v/c Ratio	0.80	0.65	0.27	0.60	0.68	0.61
Control Delay	28.4	54.2	4.2	25.6	25.6	10.6
Queue Delay	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	28.4	54.2	4.5	25.6	25.6	10.6
Queue Length 50th (ft)	280	70	25	157	187	89
Queue Length 95th (ft)	#438	#143	37	230	233	187
Internal Link Dist (ft)	1572		250		508	
Turn Bay Length (ft)						400
Base Capacity (vph)	1390	178	1970	648	1249	757
Starvation Cap Reductn	0	0	810	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.65	0.47	0.51	0.58	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

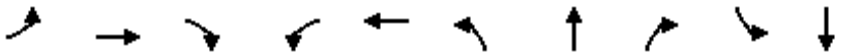
Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	253	1171	510	5	668
v/c Ratio	0.56	0.52	0.42	0.02	0.64
Control Delay	29.7	5.3	22.6	24.0	29.8
Queue Delay	0.7	0.7	0.0	0.0	0.0
Total Delay	30.5	6.0	22.6	24.0	29.8
Queue Length 50th (ft)	146	99	104	2	118
Queue Length 95th (ft)	m194	128	167	11	145
Internal Link Dist (ft)		250	280		1251
Turn Bay Length (ft)				115	
Base Capacity (vph)	450	2265	1211	436	1383
Starvation Cap Reductn	49	677	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.63	0.74	0.42	0.01	0.48

Intersection Summary
Description: Count Date 7/20/09
Northwest TSA
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	26	41	7	51	447	110	12	270	6
v/c Ratio	0.00	0.07	0.15	0.02	0.06	0.33	0.09	0.02	0.22	0.01
Control Delay	22.0	9.8	24.6	15.4	6.9	10.0	3.1	7.6	12.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	9.8	24.6	15.4	6.9	10.0	3.1	7.6	12.2	0.0
Queue Length 50th (ft)	0	0	16	1	5	54	0	1	54	0
Queue Length 95th (ft)	4	18	41	10	28	276	28	10	163	0
Internal Link Dist (ft)		582		639		1510			2454	
Turn Bay Length (ft)	75		100		110		110	80		125
Base Capacity (vph)	405	498	385	511	848	1357	1218	773	1230	1154
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.05	0.11	0.01	0.06	0.33	0.09	0.02	0.22	0.01

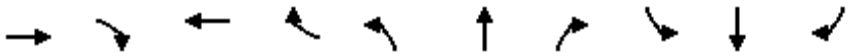
Intersection Summary
Description: Northwest TSA



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	90	30	137	98	29	161	383	325	14	333
v/c Ratio	0.20	0.08	0.33	0.23	0.07	0.33	0.51	0.44	0.04	0.39
Control Delay	17.3	26.8	7.6	17.6	17.5	15.7	23.4	8.2	14.8	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	26.8	7.6	17.6	17.5	15.7	23.4	8.2	14.8	25.7
Queue Length 50th (ft)	21	10	0	24	4	30	88	14	2	52
Queue Length 95th (ft)	69	39	46	75	29	111	338	119	17	141
Internal Link Dist (ft)		645			932		1282			1510
Turn Bay Length (ft)	115			125		125		125	150	
Base Capacity (vph)	557	648	623	519	620	552	956	869	577	1714
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.05	0.22	0.19	0.05	0.29	0.40	0.37	0.02	0.19

Intersection Summary

Description: Count Date: 6/23/2009
Northwest TSA



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	7	44	12	47	97	1068	4	33	448	49
v/c Ratio	0.02	0.11	0.03	0.12	0.15	0.81	0.00	0.17	0.34	0.04
Control Delay	16.4	6.8	16.6	6.7	5.8	18.3	0.5	8.6	5.9	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	6.8	16.6	6.7	5.8	18.3	0.5	8.6	5.9	2.1
Queue Length 50th (ft)	2	0	3	0	12	300	0	4	64	0
Queue Length 95th (ft)	10	19	14	20	38	#690	1	22	151	11
Internal Link Dist (ft)	592		788			1204			76	
Turn Bay Length (ft)		100		75	125		100	125		100
Base Capacity (vph)	729	701	700	693	637	1314	1095	191	1314	1099
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.06	0.02	0.07	0.15	0.81	0.00	0.17	0.34	0.04

Intersection Summary

Description: Count Date 6/3/09

Northwest TSA

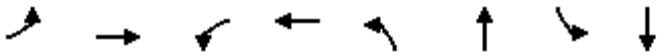
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	SEL
Lane Group Flow (vph)	150	483	668	1072	555
v/c Ratio	0.48	0.29	0.39	0.85	0.57
Control Delay	14.5	7.5	8.1	9.4	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	7.5	8.1	9.4	18.0
Queue Length 50th (ft)	23	34	51	0	61
Queue Length 95th (ft)	82	76	108	#177	144
Internal Link Dist (ft)		1085	1073		1042
Turn Bay Length (ft)	75			255	
Base Capacity (vph)	485	2560	2648	1359	2015
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.19	0.25	0.79	0.28

Intersection Summary

Description: Count Date 6/12/15
Northwest TSA
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

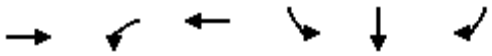


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	34	978	147	1311	318	312	41	77
v/c Ratio	0.20	0.73	0.52	0.85	0.82	0.75	0.19	0.31
Control Delay	18.7	34.1	21.8	35.6	58.7	49.4	46.7	40.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	34.1	21.8	35.6	58.7	49.4	46.7	40.0
Queue Length 50th (ft)	10	284	47	412	203	180	26	38
Queue Length 95th (ft)	33	497	109	#720	#426	#360	64	91
Internal Link Dist (ft)		1154		1366		1768		464
Turn Bay Length (ft)	175		175		150		100	
Base Capacity (vph)	327	1431	344	1544	494	519	367	402
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.68	0.43	0.85	0.64	0.60	0.11	0.19

Intersection Summary

Description: Northwest TSA

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	761	223	1331	220	573	369
v/c Ratio	0.60	0.66	0.62	0.47	0.63	0.78
Control Delay	26.2	36.6	5.2	30.3	32.2	35.8
Queue Delay	0.1	0.0	1.9	0.0	0.0	0.0
Total Delay	26.3	36.6	7.2	30.3	32.2	35.8
Queue Length 50th (ft)	196	150	141	117	169	177
Queue Length 95th (ft)	267	m175	m159	185	223	284
Internal Link Dist (ft)	1572		250		508	
Turn Bay Length (ft)						400
Base Capacity (vph)	1275	337	2161	514	992	509
Starvation Cap Reductn	0	0	635	0	0	0
Spillback Cap Reductn	47	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.66	0.87	0.43	0.58	0.72

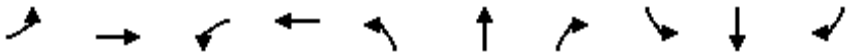
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	318	925	1208	336	1145
v/c Ratio	0.94	0.44	0.94	0.83	0.90
Control Delay	80.4	11.1	43.6	52.2	44.4
Queue Delay	0.0	1.4	0.9	0.0	0.0
Total Delay	80.4	12.5	44.5	52.2	44.4
Queue Length 50th (ft)	216	164	375	232	265
Queue Length 95th (ft)	#378	177	#523	#405	#353
Internal Link Dist (ft)		250	280		1251
Turn Bay Length (ft)				115	
Base Capacity (vph)	340	2104	1286	407	1274
Starvation Cap Reductn	0	918	0	0	0
Spillback Cap Reductn	0	0	15	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.94	0.78	0.95	0.83	0.90

Intersection Summary

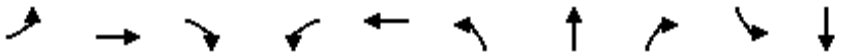
Description: Count Date 7/20/09
Northwest TSA
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	7	114	248	48	18	232	192	42	530	4
v/c Ratio	0.02	0.22	0.78	0.10	0.04	0.25	0.21	0.06	0.54	0.00
Control Delay	21.6	10.3	44.7	12.6	8.2	14.2	3.1	8.0	16.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	10.3	44.7	12.6	8.2	14.2	3.1	8.0	16.9	0.0
Queue Length 50th (ft)	3	14	122	7	3	63	0	7	121	0
Queue Length 95th (ft)	10	35	161	24	11	107	17	19	254	0
Internal Link Dist (ft)		582		639		1510			2454	
Turn Bay Length (ft)	75		100		110		110	80		125
Base Capacity (vph)	358	521	326	495	518	933	912	700	981	938
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.22	0.76	0.10	0.03	0.25	0.21	0.06	0.54	0.00

Intersection Summary

Description: Northwest TSA



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	51	330	278	79	103	142	101	37	670
v/c Ratio	0.12	0.15	0.61	0.52	0.13	0.34	0.23	0.18	0.08	0.72
Control Delay	18.6	32.3	9.0	23.2	14.7	17.9	22.9	5.9	15.3	33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	32.3	9.0	23.2	14.7	17.9	22.9	5.9	15.3	33.5
Queue Length 50th (ft)	14	22	0	96	13	24	46	0	8	145
Queue Length 95th (ft)	46	63	76	225	57	76	125	36	34	311
Internal Link Dist (ft)		645			932		1282			1510
Turn Bay Length (ft)	115			125		125		125	150	
Base Capacity (vph)	557	563	685	539	610	396	840	724	561	1494
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.09	0.48	0.52	0.13	0.26	0.17	0.14	0.07	0.45

Intersection Summary

Description: Count Date: 6/23/2009
Northwest TSA

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	160	3	6	42	451	1	4	1146	90
v/c Ratio	0.16	0.48	0.01	0.02	0.34	0.36	0.00	0.01	0.93	0.09
Control Delay	19.1	18.0	16.3	0.2	17.7	6.0	0.0	4.8	27.2	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	18.0	16.3	0.2	17.7	6.0	0.0	4.8	27.2	3.2
Queue Length 50th (ft)	11	30	1	0	4	48	0	0	273	4
Queue Length 95th (ft)	31	72	6	1	#50	152	0	4	#758	24
Internal Link Dist (ft)	592		788			1204			76	
Turn Bay Length (ft)		100		75	125		100	125		100
Base Capacity (vph)	613	721	762	698	123	1236	1031	592	1236	1035
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.22	0.00	0.01	0.34	0.36	0.00	0.01	0.93	0.09

Intersection Summary

Description: Count Date 6/3/09

Northwest TSA

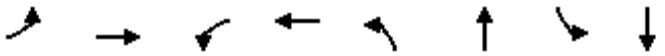
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	SEL
Lane Group Flow (vph)	99	589	374	380	1610
v/c Ratio	0.35	0.55	0.34	0.52	1.01
Control Delay	16.0	15.7	13.2	4.3	43.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	15.7	13.2	4.3	43.6
Queue Length 50th (ft)	22	74	43	0	217
Queue Length 95th (ft)	52	111	68	41	#508
Internal Link Dist (ft)		1085	1073		1042
Turn Bay Length (ft)	75			255	
Base Capacity (vph)	584	2185	2260	1108	1587
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.27	0.17	0.34	1.01

Intersection Summary

Description: Count Date 6/12/15
Northwest TSA
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



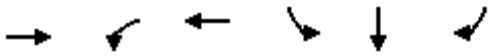
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	29	1764	169	693	163	153	86	163
v/c Ratio	0.08	1.18	0.75	0.41	0.62	0.47	0.34	0.57
Control Delay	13.4	116.0	45.3	20.5	54.8	23.6	46.8	50.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	116.0	45.3	20.5	54.8	23.6	46.8	50.1
Queue Length 50th (ft)	8	~765	64	150	113	40	55	101
Queue Length 95th (ft)	26	#1125	#213	262	201	112	110	182
Internal Link Dist (ft)		1154		1366		1768		464
Turn Bay Length (ft)	175		175		150		100	
Base Capacity (vph)	461	1500	228	1676	395	445	349	385
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	1.18	0.74	0.41	0.41	0.34	0.25	0.42

Intersection Summary

Description: Northwest TSA

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1290	119	614	346	749	445
v/c Ratio	0.94	0.67	0.31	0.61	0.69	0.67
Control Delay	39.9	55.5	5.0	26.0	25.9	13.6
Queue Delay	0.4	0.0	0.4	0.0	0.0	0.0
Total Delay	40.4	55.5	5.4	26.0	25.9	13.6
Queue Length 50th (ft)	360	72	34	165	193	110
Queue Length 95th (ft)	#555	#147	47	243	243	210
Internal Link Dist (ft)	1572		250		508	
Turn Bay Length (ft)						400
Base Capacity (vph)	1373	178	1954	648	1249	726
Starvation Cap Reductn	0	0	778	0	0	0
Spillback Cap Reductn	8	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.67	0.52	0.53	0.60	0.61

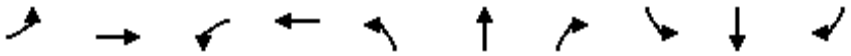
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	287	1303	565	24	690
v/c Ratio	0.64	0.58	0.48	0.07	0.65
Control Delay	30.2	5.4	23.9	25.3	30.9
Queue Delay	1.2	1.4	0.0	0.0	0.0
Total Delay	31.4	6.8	23.9	25.3	30.9
Queue Length 50th (ft)	159	107	120	12	127
Queue Length 95th (ft)	m201	m128	187	33	156
Internal Link Dist (ft)		250	280		1251
Turn Bay Length (ft)				115	
Base Capacity (vph)	450	2241	1188	436	1368
Starvation Cap Reductn	49	678	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.72	0.83	0.48	0.06	0.50

Intersection Summary

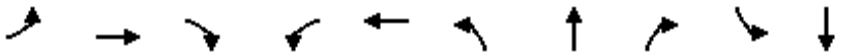
Description: Count Date 7/20/09
Northwest TSA
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	27	53	7	52	480	120	12	308	6
v/c Ratio	0.00	0.08	0.20	0.02	0.07	0.35	0.10	0.02	0.25	0.01
Control Delay	22.0	9.6	25.4	15.4	6.9	10.2	3.4	7.6	12.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	9.6	25.4	15.4	6.9	10.2	3.4	7.6	12.5	0.0
Queue Length 50th (ft)	0	0	21	1	5	60	1	1	63	0
Queue Length 95th (ft)	4	19	50	10	28	303	33	10	187	0
Internal Link Dist (ft)		582		639		1510			2454	
Turn Bay Length (ft)	75		100		110		110	80		125
Base Capacity (vph)	405	499	384	511	818	1357	1219	749	1230	1154
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.05	0.14	0.01	0.06	0.35	0.10	0.02	0.25	0.01

Intersection Summary

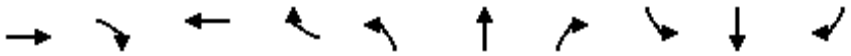
Description: Northwest TSA



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	100	61	205	166	132	292	359	407	57	340
v/c Ratio	0.25	0.18	0.46	0.36	0.29	0.60	0.54	0.56	0.15	0.45
Control Delay	18.6	30.8	8.1	19.8	20.4	22.0	27.9	9.3	16.0	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	30.8	8.1	19.8	20.4	22.0	27.9	9.3	16.0	28.6
Queue Length 50th (ft)	28	24	0	49	32	71	128	22	12	64
Queue Length 95th (ft)	77	69	57	122	99	214	337	145	47	145
Internal Link Dist (ft)		645			932		1282			1510
Turn Bay Length (ft)	115			125		125		125	150	
Base Capacity (vph)	520	558	600	492	571	500	811	815	534	1464
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.11	0.34	0.34	0.23	0.58	0.44	0.50	0.11	0.23

Intersection Summary

Description: Count Date: 6/23/2009
Northwest TSA



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	25	77	3	10	162	1277	1	6	562	86
v/c Ratio	0.07	0.18	0.01	0.03	0.30	0.97	0.00	0.05	0.43	0.08
Control Delay	17.2	6.1	16.0	2.4	7.4	36.2	0.0	6.7	6.8	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	6.1	16.0	2.4	7.4	36.2	0.0	6.7	6.8	2.0
Queue Length 50th (ft)	7	0	1	0	22	~546	0	1	88	1
Queue Length 95th (ft)	22	25	6	4	72	#873	0	6	206	16
Internal Link Dist (ft)	592		788			1204			76	
Turn Bay Length (ft)		100		75	125		100	125		100
Base Capacity (vph)	626	721	748	685	543	1312	1094	123	1312	1105
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.11	0.00	0.01	0.30	0.97	0.00	0.05	0.43	0.08

Intersection Summary

Description: Count Date 6/3/09

Northwest TSA

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

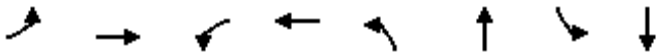
Lane Group	EBL	EBT	WBT	WBR	SEL
Lane Group Flow (vph)	183	495	685	1394	735
v/c Ratio	0.55	0.27	0.37	1.09	0.75
Control Delay	19.3	8.8	9.5	60.1	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	8.8	9.5	60.1	26.4
Queue Length 50th (ft)	45	51	76	~476	142
Queue Length 95th (ft)	#140	97	138	#757	198
Internal Link Dist (ft)		1085	1073		1042
Turn Bay Length (ft)	75			255	
Base Capacity (vph)	330	1810	1873	1283	1373
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.55	0.27	0.37	1.09	0.54

Intersection Summary

Description: Count Date 6/12/15
Northwest TSA

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

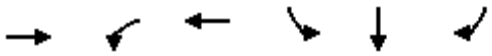


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	1128	151	1536	354	343	42	90
v/c Ratio	0.36	0.91	0.76	1.01	0.86	0.79	0.20	0.37
Control Delay	65.7	47.9	76.8	59.3	64.9	54.0	49.4	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.7	47.9	76.8	59.3	64.9	54.0	49.4	40.4
Queue Length 50th (ft)	31	418	112	604	267	236	31	48
Queue Length 95th (ft)	72	#660	#234	#978	#501	#440	66	100
Internal Link Dist (ft)		1154		1366		1768		464
Turn Bay Length (ft)	175		175		150		100	
Base Capacity (vph)	238	1304	228	1522	450	475	336	370
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.87	0.66	1.01	0.79	0.72	0.13	0.24

Intersection Summary

Description: Northwest TSA

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	861	230	1520	229	592	408
v/c Ratio	0.69	0.68	0.71	0.47	0.63	0.84
Control Delay	29.0	35.1	6.4	29.4	31.2	40.4
Queue Delay	0.2	0.0	11.3	0.0	0.0	0.0
Total Delay	29.2	35.1	17.7	29.4	31.2	40.4
Queue Length 50th (ft)	238	153	170	120	172	203
Queue Length 95th (ft)	312	m162	m169	192	230	#357
Internal Link Dist (ft)	1572		250		508	
Turn Bay Length (ft)						400
Base Capacity (vph)	1243	337	2130	514	992	509
Starvation Cap Reductn	0	0	605	0	0	0
Spillback Cap Reductn	46	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.68	1.00	0.45	0.60	0.80

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

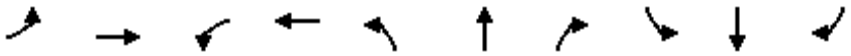
Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	341	986	1349	387	1191
v/c Ratio	1.00	0.47	1.05	0.95	0.94
Control Delay	93.6	10.5	69.0	70.8	48.7
Queue Delay	0.0	2.0	15.8	0.0	0.0
Total Delay	93.6	12.5	84.8	70.8	48.7
Queue Length 50th (ft)	~234	128	~490	281	280
Queue Length 95th (ft)	#414	182	#627	#495	#378
Internal Link Dist (ft)		250	280		1251
Turn Bay Length (ft)				115	
Base Capacity (vph)	340	2104	1287	407	1273
Starvation Cap Reductn	0	925	0	0	0
Spillback Cap Reductn	0	0	47	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.00	0.84	1.09	0.95	0.94

Intersection Summary

Description: Count Date 7/20/09
Northwest TSA

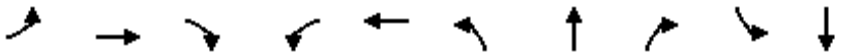
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	7	114	249	48	18	244	197	42	532	4
v/c Ratio	0.02	0.22	0.78	0.10	0.04	0.26	0.22	0.06	0.54	0.00
Control Delay	21.6	10.3	44.8	12.6	8.2	14.4	3.1	8.0	17.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	10.3	44.8	12.6	8.2	14.4	3.1	8.0	17.0	0.0
Queue Length 50th (ft)	3	14	123	7	3	67	0	7	122	0
Queue Length 95th (ft)	10	35	162	24	11	112	17	19	255	0
Internal Link Dist (ft)		582		639		1510			2454	
Turn Bay Length (ft)	75		100		110		110	80		125
Base Capacity (vph)	358	520	326	495	517	932	914	690	979	937
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.22	0.76	0.10	0.03	0.26	0.22	0.06	0.54	0.00

Intersection Summary
Description: Northwest TSA



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	62	83	446	278	81	110	142	101	37	671
v/c Ratio	0.16	0.24	0.78	0.53	0.15	0.35	0.23	0.18	0.08	0.72
Control Delay	18.9	33.8	17.5	23.6	15.6	18.2	23.0	5.9	15.4	33.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	33.8	17.5	23.6	15.6	18.2	23.0	5.9	15.4	33.8
Queue Length 50th (ft)	19	38	35	99	15	27	48	0	9	152
Queue Length 95th (ft)	56	94	176	225	60	81	125	36	34	311
Internal Link Dist (ft)		645			932		1282			1510
Turn Bay Length (ft)	115			125		125		125	150	
Base Capacity (vph)	556	558	707	530	584	395	834	719	561	1480
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.15	0.63	0.52	0.14	0.28	0.17	0.14	0.07	0.45

Intersection Summary

Description: Count Date: 6/23/2009
Northwest TSA

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	160	3	6	42	458	1	4	1264	90
v/c Ratio	0.15	0.49	0.01	0.02	0.34	0.37	0.00	0.01	1.03	0.09
Control Delay	18.9	19.8	16.3	0.2	17.8	6.2	0.0	5.0	49.1	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	19.8	16.3	0.2	17.8	6.2	0.0	5.0	49.1	3.4
Queue Length 50th (ft)	11	35	1	0	5	52	0	0	~480	4
Queue Length 95th (ft)	31	78	6	1	#50	155	0	4	#861	25
Internal Link Dist (ft)	592		788			1204			76	
Turn Bay Length (ft)		100		75	125		100	125		100
Base Capacity (vph)	613	710	759	695	123	1231	1027	584	1231	1029
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.23	0.00	0.01	0.34	0.37	0.00	0.01	1.03	0.09

Intersection Summary

Description: Count Date 6/3/09

Northwest TSA

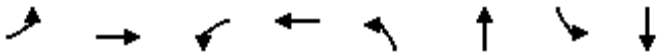
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	SEL
Lane Group Flow (vph)	100	589	374	387	1729
v/c Ratio	0.35	0.55	0.34	0.52	1.09
Control Delay	16.1	15.7	13.2	4.3	68.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	15.7	13.2	4.3	68.4
Queue Length 50th (ft)	22	74	43	0	~306
Queue Length 95th (ft)	52	111	68	41	#561
Internal Link Dist (ft)		1085	1073		1042
Turn Bay Length (ft)	75			255	
Base Capacity (vph)	584	2185	2260	1110	1589
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.27	0.17	0.35	1.09

Intersection Summary

Description: Count Date 6/12/15
Northwest TSA
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



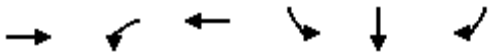
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	34	1849	169	698	165	153	86	163
v/c Ratio	0.09	1.23	0.75	0.42	0.62	0.47	0.34	0.57
Control Delay	13.4	140.4	45.5	20.6	55.0	23.5	46.9	50.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	140.4	45.5	20.6	55.0	23.5	46.9	50.1
Queue Length 50th (ft)	9	~834	65	152	114	40	55	101
Queue Length 95th (ft)	30	#1202	#214	266	203	112	110	183
Internal Link Dist (ft)		1154		1366		1768		464
Turn Bay Length (ft)	175		175		150		100	
Base Capacity (vph)	458	1498	227	1672	394	444	349	385
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	1.23	0.74	0.42	0.42	0.34	0.25	0.42

Intersection Summary

Description: Northwest TSA

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1346	119	617	346	749	446
v/c Ratio	0.98	0.67	0.32	0.61	0.69	0.67
Control Delay	47.3	55.5	5.0	25.7	25.5	13.6
Queue Delay	1.7	0.0	0.4	0.0	0.0	0.0
Total Delay	49.0	55.5	5.4	25.7	25.5	13.6
Queue Length 50th (ft)	~395	72	34	165	193	112
Queue Length 95th (ft)	#591	#148	47	241	243	215
Internal Link Dist (ft)	1572		250		508	
Turn Bay Length (ft)						400
Base Capacity (vph)	1373	178	1954	648	1249	725
Starvation Cap Reductn	0	0	777	0	0	0
Spillback Cap Reductn	13	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.67	0.52	0.53	0.60	0.62

Intersection Summary

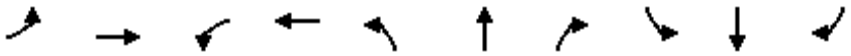
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	297	1344	567	25	690
v/c Ratio	0.66	0.60	0.48	0.07	0.65
Control Delay	30.2	5.4	24.0	25.3	31.2
Queue Delay	1.4	1.7	0.0	0.0	0.0
Total Delay	31.7	7.1	24.0	25.3	31.2
Queue Length 50th (ft)	162	109	121	12	128
Queue Length 95th (ft)	m201	m126	188	33	157
Internal Link Dist (ft)		250	280		1251
Turn Bay Length (ft)				115	
Base Capacity (vph)	450	2238	1185	436	1363
Starvation Cap Reductn	49	677	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.86	0.48	0.06	0.51

Intersection Summary

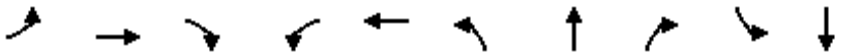
Description: Count Date 7/20/09
Northwest TSA
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1	27	56	7	52	484	123	12	314	6
v/c Ratio	0.00	0.08	0.21	0.02	0.07	0.36	0.10	0.02	0.26	0.01
Control Delay	22.0	9.6	25.6	15.4	6.9	10.3	3.4	7.6	12.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	9.6	25.6	15.4	6.9	10.3	3.4	7.6	12.5	0.0
Queue Length 50th (ft)	0	0	23	1	5	60	1	1	65	0
Queue Length 95th (ft)	4	19	52	10	28	306	33	10	192	0
Internal Link Dist (ft)		582		639		1510			2454	
Turn Bay Length (ft)	75		100		110		110	80		125
Base Capacity (vph)	405	499	384	511	812	1357	1219	746	1230	1154
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.05	0.15	0.01	0.06	0.36	0.10	0.02	0.26	0.01

Intersection Summary

Description: Northwest TSA



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	105	73	249	166	153	368	359	407	57	350
v/c Ratio	0.26	0.22	0.52	0.37	0.35	0.74	0.53	0.56	0.15	0.46
Control Delay	18.8	31.3	8.3	20.0	24.1	29.1	27.6	9.2	16.0	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	31.3	8.3	20.0	24.1	29.1	27.6	9.2	16.0	28.6
Queue Length 50th (ft)	29	29	0	49	45	95	128	22	12	65
Queue Length 95th (ft)	80	80	62	122	126	#353	337	145	47	147
Internal Link Dist (ft)		645			932		1282			1510
Turn Bay Length (ft)	115			125		125		125	150	
Base Capacity (vph)	508	550	623	483	561	497	797	807	529	1435
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.13	0.40	0.34	0.27	0.74	0.45	0.50	0.11	0.24

Intersection Summary

Description: Count Date: 6/23/2009

Northwest TSA

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	25	77	3	10	162	1352	1	6	605	86
v/c Ratio	0.07	0.18	0.01	0.03	0.32	1.03	0.00	0.05	0.46	0.08
Control Delay	17.2	6.1	16.0	2.4	7.9	50.6	0.0	6.7	7.2	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	6.1	16.0	2.4	7.9	50.6	0.0	6.7	7.2	2.2
Queue Length 50th (ft)	7	0	1	0	23	~601	0	1	99	1
Queue Length 95th (ft)	22	25	6	4	75	#938	0	6	231	17
Internal Link Dist (ft)	592		788			1204			76	
Turn Bay Length (ft)		100		75	125		100	125		100
Base Capacity (vph)	626	721	748	685	510	1312	1094	123	1312	1104
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.11	0.00	0.01	0.32	1.03	0.00	0.05	0.46	0.08

Intersection Summary

Description: Count Date 6/3/09

Northwest TSA

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

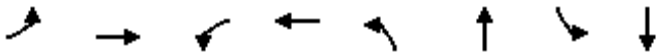
Lane Group	EBL	EBT	WBT	WBR	SEL
Lane Group Flow (vph)	189	495	685	1463	779
v/c Ratio	0.59	0.28	0.37	1.14	0.77
Control Delay	21.9	9.4	10.1	83.5	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	9.4	10.1	83.5	26.7
Queue Length 50th (ft)	50	54	80	~549	154
Queue Length 95th (ft)	#171	102	145	#843	213
Internal Link Dist (ft)		1085	1073		1042
Turn Bay Length (ft)	75			255	
Base Capacity (vph)	321	1779	1840	1279	1348
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.28	0.37	1.14	0.58

Intersection Summary

Description: Count Date 6/12/15
Northwest TSA

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



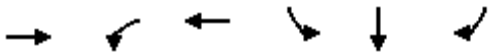
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	1161	151	1579	359	350	42	93
v/c Ratio	0.38	0.92	0.78	1.02	0.88	0.81	0.20	0.39
Control Delay	66.5	48.2	79.2	63.1	68.2	56.7	49.5	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.5	48.2	79.2	63.1	68.2	56.7	49.5	39.8
Queue Length 50th (ft)	32	437	112	~682	272	244	31	49
Queue Length 95th (ft)	75	#692	#234	#1021	#512	#456	66	101
Internal Link Dist (ft)		1154		1366		1768		464
Turn Bay Length (ft)	175		175		150		100	
Base Capacity (vph)	232	1270	223	1542	439	463	327	362
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.91	0.68	1.02	0.82	0.76	0.13	0.26

Intersection Summary

Description: Northwest TSA

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	881	230	1555	229	592	414
v/c Ratio	0.71	0.68	0.73	0.47	0.63	0.85
Control Delay	29.6	34.7	6.7	29.2	30.9	41.2
Queue Delay	0.2	0.0	16.8	0.0	0.0	0.0
Total Delay	29.8	34.7	23.5	29.2	30.9	41.2
Queue Length 50th (ft)	246	153	173	120	171	207
Queue Length 95th (ft)	322	m157	m171	192	231	#366
Internal Link Dist (ft)	1572		250		508	
Turn Bay Length (ft)						400
Base Capacity (vph)	1240	337	2127	514	992	509
Starvation Cap Reductn	0	0	600	0	0	0
Spillback Cap Reductn	47	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.68	1.02	0.45	0.60	0.81

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	345	1001	1374	391	1196
v/c Ratio	1.01	0.48	1.07	0.96	0.94
Control Delay	95.8	10.4	75.4	72.8	49.2
Queue Delay	0.0	2.3	13.4	0.0	0.0
Total Delay	95.8	12.6	88.8	72.8	49.2
Queue Length 50th (ft)	~241	132	~507	284	281
Queue Length 95th (ft)	#420	184	#645	#502	#380
Internal Link Dist (ft)		250	280		1251
Turn Bay Length (ft)				115	
Base Capacity (vph)	340	2104	1287	407	1273
Starvation Cap Reductn	0	925	0	0	0
Spillback Cap Reductn	0	0	59	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.01	0.85	1.12	0.96	0.94

Intersection Summary

Description: Count Date 7/20/09
Northwest TSA

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix D

Individual Pipeline Project Assignments

Windhaven Apartments

TAZ29 Assignment Total - AM Peak Hour

Indian Trail Road/Shawnee Road

				12	30	17					
				IN		OUT					
				0	12	0					
				SBR	SBT	SBL					
0	OUT	0	EBL	TEV =			WBR	0	IN	6	
0		0	EBT	42			WBT	0		13	
0	IN	0	EBR				WBL	6	OUT	7	
				NBL	NBT	NBR					
				0	17	7					
				OUT		IN					
				18	42	25					

Forest Lane/Barnes Road

				39	56	17					
				IN		OUT					
				0	0	39					
				SBR	SBT	SBL					
19	OUT	0	EBL	TEV =			WBR	17	IN	36	
65		45	EBT	121			WBT	19		121	
45	IN	0	EBR				WBL	0	OUT	85	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Pamela Lane/Barnes Road

				59	85	25					
				IN		OUT					
				0	0	59					
				SBR	SBT	SBL					
36	OUT	0	EBL	TEV =			WBR	25	IN	62	
121		85	EBT	206			WBT	36		206	
85	IN	0	EBR				WBL	0	OUT	144	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Indian Trail Road/Barnes Road

				17	41	24					
				IN		OUT					
				5	4	8					
				SBR	SBT	SBL					
62	OUT	12	EBL	TEV =			WBR	3	IN	27	
206		34	EBT	259			WBT	14		89	
144	IN	99	EBR				WBL	9	OUT	62	
				NBL	NBT	NBR					
				42	9	21					
				OUT		IN					
				111	183	72					

Indian Trail Road/Strong Road

				111	183	72					
				IN		OUT					
				11	101	0					
				SBR	SBT	SBL					
32	OUT	25	EBL	TEV =			WBR	0	IN	0	
106		0	EBT	254			WBT	0		0	
74	IN	49	EBR				WBL	0	OUT	0	
				NBL	NBT	NBR					
				21	47	0					
				OUT		IN					
				150	219	68					

Indian Trail Road/Multiple Middle

				150	219	68					
				IN		OUT					
				2	148	0					
				SBR	SBT	SBL					
28	OUT	5	EBL	TEV =			WBR	0	IN	0	
92		0	EBT	303			WBT	0		0	
64	IN	59	EBR				WBL	0	OUT	0	
				NBL	NBT	NBR					
				25	64	0					
				OUT		IN					
				207	296	89					

Indian Trail Road/Francis Avenue

				207	296	89					
				IN		OUT					
				18	0	189					
				SBR	SBT	SBL					
18	OUT	8	EBL	TEV =			WBR	81	IN	81	
25		0	EBT	296			WBT	0		271	
8	IN	0	EBR				WBL	0	OUT	189	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Alberta Avenue/Francis Avenue

				4	13	9					
				IN		OUT					
				4	0	0					
				SBR	SBT	SBL					
71	OUT	9	EBL	TEV =			WBR	0	IN	52	
237		121	EBT	237			WBT	52		173	
166	IN	36	EBR				WBL	0	OUT	121	
				NBL	NBT	NBR					
				15	0	0					
				OUT		IN					
				36	51	15					

Ash Street/Francis Avenue

				8	8	0					
				IN		OUT					
				8	0	0					
				SBR	SBT	SBL					
51	OUT	0	EBL	TEV =			WBR	0	IN	43	
169		92	EBT	169			WBT	43		135	
118	IN	27	EBR				WBL	0	OUT	92	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				27	27	0					

Maple Street/Francis Avenue

				0	18	18					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
43	OUT	18	EBL	TEV =			WBR	0	IN	32	
135		74	EBT	135			WBT	32		106	
92	IN	0	EBR				WBL	0	OUT	74	
				NBL	NBT	NBR					
				11	0	0					
				OUT		IN					
				0	11	11					

Windhaven Apartments

TAZ29 Assignment Total - PM Peak Hour

Indian Trail Road/Shawnee Avenue

				21	37	16					
				IN		OUT					
				0	21	0					
				SBR	SBT	SBL					
0	OUT	0	EBL	TEV =			WBR	0	IN	9	
0		0	EBT	53			WBT	0		16	
0	IN	0	EBR				WBL	9	OUT	7	
				NBL	NBT	NBR					
				0	16	7					
				OUT		IN					
				30	53	23					

Forest Lane/Barnes Road

				24	71	47					
				IN		OUT					
				0	0	24					
				SBR	SBT	SBL					
54	OUT	0	EBL	TEV =			WBR	47	IN	101	
81		27	EBT	152			WBT	54		152	
27	IN	0	EBR				WBL	0	OUT	51	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Pamela Lane/Barnes Road

				36	106	70					
				IN		OUT					
				0	0	36					
				SBR	SBT	SBL					
101	OUT	0	EBL	TEV =			WBR	70	IN	171	
152		51	EBT	258			WBT	101		258	
51	IN	0	EBR				WBL	0	OUT	87	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Indian Trail Road/Barnes Road

				29	51	22					
				IN		OUT					
				14	11	5					
				SBR	SBT	SBL					
171	OUT	7	EBL	TEV =			WBR	9	IN	74	
258		20	EBT	325			WBT	40		111	
87	IN	60	EBR				WBL	25	OUT	38	
				NBL	NBT	NBR					
				117	5	13					
				OUT		IN					
				95	230	135					

Indian Trail Road/Strong Road

				95	230	135					
				IN		OUT					
				29	66	0					
				SBR	SBT	SBL					
88	OUT	15	EBL	TEV =			WBR	0	IN	0	
133		0	EBT	318			WBT	0		0	
45	IN	30	EBR				WBL	0	OUT	0	
				NBL	NBT	NBR					
				59	120	0					
				OUT		IN					
				95	274	178					

Indian Trail Road/Multiple Middle

				95	274	178					
				IN		OUT					
				6	90	0					
				SBR	SBT	SBL					
76	OUT	3	EBL	TEV =			WBR	0	IN	0	
115		0	EBT	380			WBT	0		0	
39	IN	36	EBR				WBL	0	OUT	0	
				NBL	NBT	NBR					
				70	176	0					
				OUT		IN					
				125	371	246					

Indian Trail Road/Francis Avenue

				125	371	246					
				IN		OUT					
				11	0	115					
				SBR	SBT	SBL					
11	OUT	21	EBL	TEV =			WBR	225	IN	225	
32		0	EBT	371			WBT	0		339	
21	IN	0	EBR				WBL	0	OUT	115	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Alberta Avenue/Francis Avenue

				11	16	5					
				IN		OUT					
				11	0	0					
				SBR	SBT	SBL					
197	OUT	5	EBL	TEV =			WBR	0	IN	144	
297		73	EBT	297			WBT	144		217	
100	IN	21	EBR				WBL	0	OUT	73	
				NBL	NBT	NBR					
				42	0	0					
				OUT		IN					
				21	64	42					

Ash Street/Francis Avenue

				21	21	0					
				IN		OUT					
				21	0	0					
				SBR	SBT	SBL					
140	OUT	0	EBL	TEV =			WBR	0	IN	119	
212		55	EBT	212			WBT	119		175	
72	IN	16	EBR				WBL	0	OUT	55	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				16	16	0					

Maple Street/Francis Avenue

				0	11	11					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
119	OUT	11	EBL	TEV =			WBR	0	IN	88	
175		45	EBT	175			WBT	88		133	
55	IN	0	EBR				WBL	0	OUT	45	
				NBL	NBT	NBR					
				32	0	0					
				OUT		IN					
				0	32	32					

Windhaven Apartments

TAZ30 Assignment Total - AM Peak Hour

Indian Trail Road/Shawnee Road

				2	9	7					
				IN		OUT					
				0	2	0					
				SBR	SBT	SBL					
0	OUT	0	EBL	TEV =			WBR	0	IN	0	
0		0	EBT	11			WBT	0		2	
0	IN	0	EBR				WBL	0	OUT	1	
				NBL	NBT	NBR					
				0	7	1					
				OUT		IN					
				3	11	8					

Forest Lane/Barnes Road

				0	0	0					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
7	OUT	0	EBL	TEV =			WBR	0	IN	7	
9		2	EBT	9			WBT	7		9	
2	IN	0	EBR				WBL	0	OUT	2	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Pamela Lane/Barnes Road

				0	0	0					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
7	OUT	0	EBL	TEV =			WBR	0	IN	7	
9		2	EBT	9			WBT	7		9	
2	IN	0	EBR				WBL	0	OUT	2	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Indian Trail Road/Barnes Road

				3	11	8					
				IN		OUT					
				0	0	3					
				SBR	SBT	SBL					
7	OUT	0	EBL	TEV =			WBR	8	IN	66	
9		2	EBT	89			WBT	7		89	
2	IN	0	EBR				WBL	51	OUT	23	
				NBL	NBT	NBR					
				0	0	18					
				OUT		IN					
				51	69	18					

Indian Trail Road/Strong Road

				51	69	18					
				IN		OUT					
				1	50	0					
				SBR	SBT	SBL					
2	OUT	0	EBL	TEV =			WBR	0	IN	1	
3		0	EBT	70			WBT	1		2	
1	IN	0	EBR				WBL	0	OUT	0	
				NBL	NBT	NBR					
				0	17	0					
				OUT		IN					
				50	67	17					

Indian Trail Road/Multiple Middle

				50	67	17					
				IN		OUT					
				0	50	0					
				SBR	SBT	SBL					
0	OUT	0	EBL	TEV =			WBR	0	IN	12	
0		0	EBT	83			WBT	0		16	
0	IN	0	EBR				WBL	12	OUT	4	
				NBL	NBT	NBR					
				0	17	4					
				OUT		IN					
				61	83	21					

Indian Trail Road/Francis Avenue

				61	83	21					
				IN		OUT					
				6	0	56					
				SBR	SBT	SBL					
6	OUT	2	EBL	TEV =			WBR	19	IN	19	
8		0	EBT	83			WBT	0		75	
2	IN	0	EBR				WBL	0	OUT	56	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Alberta Avenue/Francis Avenue

				0	0	0					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
18	OUT	0	EBL	TEV =			WBR	0	IN	15	
69		44	EBT	69			WBT	15		59	
51	IN	7	EBR				WBL	0	OUT	44	
				NBL	NBT	NBR					
				2	0	0					
				OUT		IN					
				7	9	2					

Ash Street/Francis Avenue

				3	3	0					
				IN		OUT					
				3	0	0					
				SBR	SBT	SBL					
15	OUT	0	EBL	TEV =			WBR	0	IN	12	
59		23	EBT	59			WBT	12		36	
44	IN	21	EBR				WBL	0	OUT	23	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				21	21	0					

Maple Street/Francis Avenue

				0	8	8					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
12	OUT	8	EBL	TEV =			WBR	0	IN	5	
36		15	EBT	36			WBT	5		20	
23	IN	0	EBR				WBL	0	OUT	15	
				NBL	NBT	NBR					
				7	0	0					
				OUT		IN					
				0	7	7					

Windhaven Apartments

TAZ30 Assignment Total - PM Peak Hour

Indian Trail Road/Shawnee Avenue

				6	10	3					
				IN		OUT					
				0	6	0					
				SBR	SBT	SBL					
0	OUT	0	EBL	TEV =			WBR	0	IN	1	
0		0	EBT	11			WBT	0		2	
0	IN	0	EBR				WBL	1	OUT	1	
				NBL	NBT	NBR					
				0	3	1					
				OUT		IN					
				7	11	4					

Forest Lane/Barnes Road

				0	0	0					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
3	OUT	0	EBL	TEV =			WBR	0	IN	3	
10		6	EBT	10			WBT	3		10	
6	IN	0	EBR				WBL	0	OUT	6	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Pamela Lane/Barnes Road

				0	0	0					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
3	OUT	0	EBL	TEV =			WBR	0	IN	3	
10		6	EBT	10			WBT	3		10	
6	IN	0	EBR				WBL	0	OUT	6	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Indian Trail Road/Barnes Road

				7	11	4					
				IN		OUT					
				0	0	7					
				SBR	SBT	SBL					
3	OUT	0	EBL	TEV =			WBR	4	IN	32	
10		6	EBT	92			WBT	3		92	
6	IN	0	EBR				WBL	25	OUT	60	
				NBL	NBT	NBR					
				0	0	47					
				OUT		IN					
				25	71	47					

Indian Trail Road/Strong Road

				25	71	47					
				IN		OUT					
				1	24	0					
				SBR	SBT	SBL					
1	OUT	1	EBL	TEV =			WBR	0	IN	1	
3		1	EBT	73			WBT	1		2	
2	IN	0	EBR				WBL	0	OUT	1	
				NBL	NBT	NBR					
				0	46	0					
				OUT		IN					
				24	70	46					

Indian Trail Road/Multiple Middle

				24	70	46					
				IN		OUT					
				0	24	0					
				SBR	SBT	SBL					
0	OUT	0	EBL	TEV =			WBR	0	IN	6	
0		0	EBT	86			WBT	0		16	
0	IN	0	EBR				WBL	6	OUT	11	
				NBL	NBT	NBR					
				0	46	11					
				OUT		IN					
				30	86	56					

Indian Trail Road/Francis Avenue

				30	86	56					
				IN		OUT					
				3	0	27					
				SBR	SBT	SBL					
3	OUT	5	EBL	TEV =			WBR	51	IN	51	
8		0	EBT	86			WBT	0		78	
5	IN	0	EBR				WBL	0	OUT	27	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Alberta Avenue/Francis Avenue

				0	0	0					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
47	OUT	0	EBL	TEV =			WBR	0	IN	40	
71		21	EBT	71			WBT	40		62	
25	IN	3	EBR				WBL	0	OUT	21	
				NBL	NBT	NBR					
				6	0	0					
				OUT		IN					
				3	10	6					

Ash Street/Francis Avenue

				7	7	0					
				IN		OUT					
				7	0	0					
				SBR	SBT	SBL					
40	OUT	0	EBL	TEV =			WBR	0	IN	33	
62		11	EBT	62			WBT	33		44	
21	IN	10	EBR				WBL	0	OUT	11	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				10	10	0					

Maple Street/Francis Avenue

				0	4	4					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
33	OUT	4	EBL	TEV =			WBR	0	IN	14	
44		7	EBT	44			WBT	14		21	
11	IN	0	EBR				WBL	0	OUT	7	
				NBL	NBT	NBR					
				19	0	0					
				OUT		IN					
				0	19	19					

Windhaven Apartments

TAZ31 Assignment Total - AM Peak Hour

Indian Trail Road/Shawnee Road

				0	1	1					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
0	OUT	0	EBL	TEV =			WBR	0	IN	0	
0		0	EBT	2			WBT	0		0	
0	IN	0	EBR				WBL	0	OUT	0	
				NBL	NBT	NBR					
				0	1	0					
				OUT		IN					
				1	2	1					

Forest Lane/Barnes Road

				0	0	0					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
1	OUT	0	EBL	TEV =			WBR	0	IN	1	
1		0	EBT	1			WBT	1		1	
0	IN	0	EBR				WBL	0	OUT	0	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Pamela Lane/Barnes Road

				0	0	0					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
1	OUT	0	EBL	TEV =			WBR	0	IN	1	
1		0	EBT	1			WBT	1		1	
0	IN	0	EBR				WBL	0	OUT	0	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Indian Trail Road/Barnes Road

				1	2	1					
				IN		OUT					
				0	0	1					
				SBR	SBT	SBL					
1	OUT	0	EBL	TEV =			WBR	1	IN	4	
1		0	EBT	6			WBT	1		6	
0	IN	0	EBR				WBL	2	OUT	2	
				NBL	NBT	NBR					
				0	0	1					
				OUT		IN					
				2	3	1					

Indian Trail Road/Strong Road

				2	3	1					
				IN		OUT					
				0	2	0					
				SBR	SBT	SBL					
1	OUT	0	EBL	TEV =			WBR	0	IN	0	
1		0	EBT	4			WBT	0		0	
0	IN	0	EBR				WBL	0	OUT	0	
				NBL	NBT	NBR					
				0	1	0					
				OUT		IN					
				2	3	1					

Indian Trail Road/Multiple Middle

				2	3	1					
				IN		OUT					
				0	2	0					
				SBR	SBT	SBL					
0	OUT	0	EBL	TEV =			WBR	0	IN	1	
0		0	EBT	4			WBT	0		1	
0	IN	0	EBR				WBL	1	OUT	0	
				NBL	NBT	NBR					
				0	1	0					
				OUT		IN					
				3	4	1					

Indian Trail Road/Francis Avenue

				3	4	1					
				IN		OUT					
				2	0	1					
				SBR	SBT	SBL					
2	OUT	1	EBL	TEV =			WBR	1	IN	1	
2		0	EBT	4			WBT	0		2	
1	IN	0	EBR				WBL	0	OUT	1	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				0	0	0					

Alberta Avenue/Francis Avenue

				0	0	0					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
1	OUT	0	EBL	TEV =			WBR	0	IN	1	
2		1	EBT	3			WBT	0		2	
1	IN	0	EBR				WBL	1	OUT	1	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				1	1	0					

Ash Street/Francis Avenue

				14	14	0					
				IN		OUT					
				1	8	6					
				SBR	SBT	SBL					
1	OUT	0	EBL	TEV =			WBR	0	IN	0	
2		1	EBT	16			WBT	0		7	
1	IN	0	EBR				WBL	0	OUT	7	
				NBL	NBT	NBR					
				0	0	0					
				OUT		IN					
				8	8	0					

Maple Street/Francis Avenue

				0	6	6					
				IN		OUT					
				0	0	0					
				SBR	SBT	SBL					
0	OUT	1	EBL	TEV =			WBR	3	IN	3	
7		6	EBT	13			WBT	0		9	
7	IN	0	EBR				WBL	0	OUT	6	
				NBL	NBT	NBR					
				0	3	0					
				OUT		IN					
				0	3	3					

Windhaven Apartments

TAZ31 Assignment Total - PM Peak Hour

Indian Trail Road/Shawnee Avenue

				1	1	0				
				IN		OUT				
				0	1	0				
				SBR	SBT	SBL				
0	OUT	0	EBL	TEV =			WBR	0	IN	0
0		0	EBT	2			WBT	0		0
0	IN	0	EBR				WBL	0	OUT	0
				NBL	NBT	NBR				
				0	0	0				
				OUT		IN				
				1	2	1				

Forest Lane/Barnes Road

				0	0	0				
				IN		OUT				
				0	0	0				
				SBR	SBT	SBL				
0	OUT	0	EBL	TEV =			WBR	0	IN	0
1		1	EBT	1			WBT	0		1
1	IN	0	EBR				WBL	0	OUT	1
				NBL	NBT	NBR				
				0	0	0				
				OUT		IN				
				0	0	0				

Pamela Lane/Barnes Road

				0	0	0				
				IN		OUT				
				0	0	0				
				SBR	SBT	SBL				
0	OUT	0	EBL	TEV =			WBR	0	IN	0
1		1	EBT	1			WBT	0		1
1	IN	0	EBR				WBL	0	OUT	1
				NBL	NBT	NBR				
				0	0	0				
				OUT		IN				
				0	0	0				

Indian Trail Road/Barnes Road

				1	2	1				
				IN		OUT				
				0	0	1				
				SBR	SBT	SBL				
0	OUT	0	EBL	TEV =			WBR	1	IN	2
1		1	EBT	6			WBT	0		6
1	IN	0	EBR				WBL	1	OUT	4
				NBL	NBT	NBR				
				0	0	2				
				OUT		IN				
				1	4	2				

Indian Trail Road/Strong Road

				1	4	2				
				IN		OUT				
				0	1	0				
				SBR	SBT	SBL				
0	OUT	0	EBL	TEV =			WBR	0	IN	0
1		0	EBT	4			WBT	0		0
1	IN	0	EBR				WBL	0	OUT	0
				NBL	NBT	NBR				
				0	2	0				
				OUT		IN				
				1	3	2				

Indian Trail Road/Multiple Middle

				1	3	2				
				IN		OUT				
				0	1	0				
				SBR	SBT	SBL				
0	OUT	0	EBL	TEV =			WBR	0	IN	0
0		0	EBT	4			WBT	0		1
0	IN	0	EBR				WBL	0	OUT	1
				NBL	NBT	NBR				
				0	2	1				
				OUT		IN				
				1	4	3				

Indian Trail Road/Francis Avenue

				1	4	3				
				IN		OUT				
				1	0	1				
				SBR	SBT	SBL				
1	OUT	1	EBL	TEV =			WBR	1	IN	1
2		0	EBT	4			WBT	0		2
1	IN	0	EBR				WBL	0	OUT	1
				NBL	NBT	NBR				
				0	0	0				
				OUT		IN				
				0	0	0				

Alberta Avenue/Francis Avenue

				0	0	0				
				IN		OUT				
				0	0	0				
				SBR	SBT	SBL				
1	OUT	0	EBL	TEV =			WBR	0	IN	1
2		0	EBT	3			WBT	1		2
1	IN	0	EBR				WBL	0	OUT	1
				NBL	NBT	NBR				
				0	0	1				
				OUT		IN				
				0	1	1				

Ash Street/Francis Avenue

				7	7	0				
				IN		OUT				
				1	4	3				
				SBR	SBT	SBL				
1	OUT	0	EBL	TEV =			WBR	0	IN	1
2		1	EBT	9			WBT	1		4
1	IN	0	EBR				WBL	0	OUT	4
				NBL	NBT	NBR				
				0	0	0				
				OUT		IN				
				4	4	0				

Maple Street/Francis Avenue

				0	14	14				
				IN		OUT				
				0	0	0				
				SBR	SBT	SBL				
1	OUT	1	EBL	TEV =			WBR	6	IN	6
4		3	EBT	18			WBT	0		9
4	IN	0	EBR				WBL	0	OUT	3
				NBL	NBT	NBR				
				0	7	0				
				OUT		IN				
				0	8	8				

MORRISON-MAIERLE, INC.

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memo

TO: Inga Note, P.E. - City of Spokane Street Department
Lisa Key - City of Spokane Planning and Development
Tirrell Black - City of Spokane Planning Department

FROM: Bill White
Kennet Bertelsen, P.E.

DATE: May 23, 2016

JOB NO.: 5594.002

RE: Windhaven Apartments, Summary Micro-simulation/SimTraffic Analysis

CC: Jay Bonnet, P.E. - Bonnett Engineering
Del Stratton - Douglass Properties
Greg Figg - WSDOT

☐**Urgent** ☒**For Review** ☒**Please Comment** ☒**Please Reply** ☐**For Your Use**

This memorandum summarizes the micro-simulation analysis developed in SimTraffic for the Windhaven Apartments project proposed in Spokane, WA. Provided is additional information to support the *Windhaven Apartments Traffic Impact Analysis* (MMI, May 2016), as developed per the request of officials with the Washington State Department of Transportation (WSDOT) specifically for Francis Avenue study intersections. Source material such as project data, traffic forecasts, and comparative analyses can be reviewed with the project Traffic Impact Analysis (TIA), as this provides analytical results only and is not intended as a stand-alone document.

SIMTRAFFIC ANALYSIS

SimTraffic (Trafficware, 2016) is a micro-simulation program used to review the cumulative impact of traffic within the context of roadway and intersection networks. This is somewhat different than the "spot" analyses provided through Highway Capacity Manual (HCM) methodologies and the software that generates HCM results (such as Synchro used with the Windhaven TIA). Cumulative results can be different with micro-simulation because the effect of the traffic influences from upstream and downstream intersections are addressed, whereas spot analysis focuses on traffic conditions predominantly at an intersection only. Spillback between intersections, spillback beyond turning bays, forced lane changes, unbalanced lane use for downstream turns, and other traffic flow interactions are examples of traffic conditions that can have a cumulative impact upon the operation of a single intersection.

Intersection delay, block time, and queue penalties are micro-simulation results requested by WSDOT for Francis Avenue study intersections. A description of intersection delay, block time, and queue penalties are as follows:

- **Block Time.** This represents the proportion of time during the peak hour that a turn lane is queued at the top or back of a storage area (i.e. lane length), thus access to the lane is effectively blocked. Or this represents the proportion of time that a turn lane is blocked due to queues in the adjacent through lane. Results are presented in terms of a percentage of time blocked during the peak hour. Block time is shown in Table 2.
- **Intersection Delay.** Presented by Table 1, this is the average delay experienced by vehicles at an intersection. Different than control delay (as presented by the TIA), this includes the effects of vehicle slow-downs and arrival/departure influences caused by

the factors mentioned previously (spillback, etc.). The information is presented as the average delay experienced by vehicles/drivers at an intersection in seconds.

- **Queue Penalty.** This is a rough measure of how many vehicles are impacted by blocking throughout the peak hour. As a quick way to quantify the effects of queuing at an intersection, this represents the vehicles that cannot access a turn lane because of queues or cannot make it through the intersection, because of volume/queuing, during the peak hour. The queue penalty is shown in Table 2.

Delay, block time, and queue penalty analyses were developed in SimTraffic assuming a 60 minute analysis using a 10 minute "seed" time. Five micro-simulation runs/iterations were performed for all analysis conditions. The results of these five runs where then averaged to generate information shown on the following pages. Note that summary worksheets and PDF reports for each run are attached to this memorandum for existing, future without, and future-with project analysis conditions.

The results of the delay analyses are provided on Table 1 for the AM and PM peak hours of the typical weekday. The analysis was prepared based on existing traffic counts, future without-project traffic forecasts, and future with-project traffic forecasts. The "spot" HCM delay results are shown for from the TIA as a means for comparing/quantifying the incidental delay associated with off-intersection traffic impacts/influences. However, please note these are not direct comparisons as they are quantifying somewhat different aspects of intersection operation.

Table 1. Existing and Forecast Micro-Simulation Intersection Delays

Year 2021 Condition	Existing Condition				Future Without Project Traffic				Future With Project Traffic			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
Signalized Intersections	Sim[1]	HCM[2]	Sim[1]	HCM[2]	Sim[1]	HCM[2]	Sim[1]	HCM[2]	Sim[1]	HCM[2]	Sim[1]	HCM[2]
Indian Trail Rd/Francis Ave	14.3	12.3	15.3	7.9	38.1	20.3	33.2	10.4	43.5	29.6	36.7	10.7
Alberta St/Francis Ave	56.6	36.4	92.4	32.2	76.3	65.6	132.3	53.7	76.0	78.3	149.9	59.4
Ash St/Francis Ave	16.9	22.3	17.1	20.4	16.6	26.1	19.0	21.3	19.5	28.9	20.6	21.5
Maple St/Francis Ave	14.5	17.4	78.5	38.8	11.3	17.6	117.9	51.4	11.8	17.6	116.8	54.0

1. Sim = SimTraffic Results
2. HCM = Highway Capacity Manual Comparison

A comparison confirms that future without-project intersection delays are nearly 10 seconds higher, on average between intersections, versus existing intersection delays during the AM peak hour. Futures without project delays are nearly 25 seconds higher, as averaged between intersections, during the PM peak hour. This means the typical driver will experience an average delay of between 10 and 25 additional seconds per intersection by year 2021, assuming no project development.

Comparatively, a comparison of without and with-project conditions confirms a 2 second increase of average delay, between intersection, during the AM peak hour. Also an approximate 5 second increase is forecast between intersections during the PM peak hour. This means the typical driver will experience an average delay of between 2 and 5 additional seconds per intersection by year 2021, assuming no project development.

Also note that SimTraffic delays do tend to exceed HCM control delays, as one would expect, when other incidental delays are considered for study intersections.

Block time and queue penalty data are shown in Table 2. The analysis was prepared initially based on existing counts, future without-project forecasts, and future-with project forecasts. However, there were minimal differences noted in results between the future without and future with-project conditions. As such, only existing and future-with project conditions are shown for the peak hours. Also, SimTraffic did not note blockage or excessive queues for a number of intersection movements. Thus, data was reported only for reasonably impacted movements at study intersections. Note the attached summary sheets and SimTraffic reports can be reviewed for all analysis conditions and all movements, as desired.

Table 2. Existing and Forecast Micro-Simulation Block Time and Queue Penalties

Signalized Intersections	Existing Condition				Future-With Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Queue[1]	%Block[2]	Queue[1]	%Block[2]	Queue[1]	%Block[2]	Queue[1]	%Block[2]
Indian Trail Rd/Francis Ave								
- Westbound Right-Turn Lane	0%	0	3%	9	0%	0	17%	53
- Eastbound Through	5%	4	2%	3	5%	4	2%	4
- Eastbound Left-Turn Lane	2%	5	19%	42	5%	13	25%	58
Alberta St/Francis Ave								
- Northbound Left-Turn	0%	0	4%	18	0%	0	4%	18
- Northbound Left-Turn/Through	8%	5	68%	127	8%	7	72%	158
- Southbound Through	13%	8	2%	1	13%	10	2%	1
- Southbound Left-Turn	3%	4	0%	0	3%	4	0%	0
- Westbound Through	0%	1	49%	69	1%	1	50%	75
- Westbound Left-Turn	1%	4	1%	6	5%	16	3%	24
- Eastbound Through	51%	9	21%	7	60%	19	33%	14
Ash St/Francis Ave								
- Eastbound Through	0%	0	1%	2	2%	8	2%	4
Maple St/Francis Ave								
- Northbound Left-Turn/Through	1%	1	65%	118	2%	1	72%	155
- Westbound Through	0%	0	5%	15	0%	0	36%	133

1. Queue = Queue Penalty
2. %Block = Block Time

As shown, queue penalties and block time increase between the existing and future with-project condition. A general description is provided on the intersection basis as follows:

- **Indian Trail Road/Francis Avenue.** There is an existing average block time of 2 percent (between movements) during the AM peak hour and 8 percent during the PM peak hour. This increases overall in the future condition to 3 percent during the AM peak hour and 15 percent during the PM peak hour. There are currently a total of 9 vehicles impacted by queues in the AM peak hour and 54 vehicles during the PM peak hour (i.e. the queue penalty). This impact increases to 17 vehicles during the AM peak hour and 115 vehicles during the PM peak hour, in total.

- **Alberta Street/Francis Avenue.** The average intersection block time is 31 percent during the AM peak hour and 21 percent during the PM peak hour; increasing in the forecast condition to 13 percent and 23 percent between the AM and PM peak hours, respectively. There are 31 total vehicles impacted by queues during the AM peak hour and 228 during the PM peak hour. This increases to 57 AM peak hour and 290 PM peak hour vehicles impacted by queues, as based on the future condition.

- **Ash Street/Francis Avenue.** No block time or queue penalties were currently identified during the AM peak hour. However, there is an average 2 percent block and 8 vehicle queue penalty forecast during the AM peak hour, averaged at the intersection. The

existing block time increases from 1 to 2 percent, on average, between existing and forecast conditions with an associated queue penalty increase of 2 to 4 vehicles during the PM peak hour.

- **Maple Street/Francis Avenue.** The AM peak hour block time and queue penalty, at 1 percent and 1 vehicle, does not increase between the existing and future conditions. The PM peak hour block time does increase from 35 to 54 percent between the existing and future condition. The 133 vehicles currently impacted by queues increases to 288 vehicles during the forecast PM peak hour.

SUMMARY

SimTraffic analyses confirms traffic growth will increase cumulative impacts upon study intersections located along Francis Avenue, as measured by gains in intersection delay, block time, and queue penalty. The typical driver will experience an average delay of between 12 and 30 additional seconds per intersection by year 2021, assuming development of all projected specified within the TIA. On average, blockage time is anticipated to increase between the peak hours by: up to 7 percent at the Indian Trail Road/Francis Avenue intersection, up to 3 percent at the Alberta Street/Francis Avenue intersection, up to 2 percent at the Ash Street/Francis Avenue intersection, and up to 19 percent at the Maple Street/Francis Avenue intersection, assuming; assuming development of all projected specified within the TIA. Finally, the number of vehicles impacted by queues between peak hours will elevate by up to: 61 for the Indian Trail Road/Francis Avenue intersection, 62 for the Alberta Street/Francis Avenue intersection, 8 for the Ash Street/Francis Avenue intersection, and 155 for the Maple Street/Francis Avenue intersection, assuming development of all projected specified within the TIA.

However, the analysis confirms marginal changes between the future without and with project conditions. Drivers are forecast to potentially experience an average delay increase of between 2 and 5 additional seconds per intersection by year 2021, along Francis Avenue, which is a moderate change. The difference in block time and queue penalties was not summarized as the differences were negligible (although they are attached for review, as needed). Thus, the SimTraffic analysis also confirms the project proposal will have a minimal impact upon cumulative traffic operations for intersections located along Francis Avenue.

We hope this provides sufficient information to help WSDOT with their consideration and comment on the Windhaven project. Please contact our office with questions or comments.

Existing

	AM Peak Hour, Run/Seed							PM Peak Hour, Run/Seed						
	1	2	3	4	5	Avg	HCM	1	2	3	4	5	Avg	HCM
Indian Trail/Francis Avenue	13.5	13.7	14.0	14.6	15.7	14.3	12.3	15.4	14.8	13.8	14.5	17.8	15.3	7.9
Alberta Street/Francis Avenue	44.3	37.2	87.8	57.1	56.8	56.6	36.4	105.0	86.5	74.8	87.7	107.8	92.4	32.2
Ash Street/Francis Avenue	17.2	16.9	16.7	17.2	16.6	16.9	22.3	18.0	16.0	16.7	17.3	17.7	17.1	20.4
Maple Street/Francis Avenue	14.4	13.6	15.4	14.2	14.7	14.5	17.4	48.9	120.3	55.7	61.0	106.7	78.5	38.8

	AM Peak Hour							PM Peak Hour						
Indian Trail/Francis Avenue		EB-L	EB-TT	WB-TT	WB-R	SB-L	SB-LR	Indian Trail/Francis Avenue		EB-L	EB-TT	WB-TT	WB-R	SB-L	SB-LR
AM-1	- Queuing Penailty (%)	1%	7%	0%	0%	0%	0%	PM-1	- Queuing Penailty (%)	20%	2%	1%	4%	0%	0%
	- Blocking Report (veh)	3	5	0	0	0	0		- Blocking Report (veh)	45	3	1	11	0	0
AM-2	- Queuing Penailty (%)	2%	5%	0%	0%	0%	0%	PM-2	- Queuing Penailty (%)	29%	2%	0%	3%	0%	0%
	- Blocking Report (veh)	5	4	0	0	0	0		- Blocking Report (veh)	65	2	0	9	0	0
AM-3	- Queuing Penailty (%)	2%	6%	0%	0%	0%	0%	PM-3	- Queuing Penailty (%)	8%	2%	0%	2%	0%	0%
	- Blocking Report (veh)	5	5	0	0	0	0		- Blocking Report (veh)	18	3	1	6	0	0
AM-4	- Queuing Penailty (%)	2%	6%	0%	0%	0%	0%	PM-4	- Queuing Penailty (%)	21%	2%	0%	2%	0%	0%
	- Blocking Report (veh)	5	5	0	0	0	0		- Blocking Report (veh)	49	3	1	5	0	0
AM-5	- Queuing Penailty (%)	2%	3%	0%	0%	0%	0%	PM-5	- Queuing Penailty (%)	15%	2%	0%	5%	0%	0%
	- Blocking Report (veh)	6	2	0	0	0	0		- Blocking Report (veh)	33	2	1	16	0	0
AM-Avg	- Queuing Penailty (%)	2%	5%	0%	0%	0%	0%	PM-Avg	- Queuing Penailty (%)	19%	2%	0%	3%	0%	0%
	- Blocking Report (veh)	5	4	0	0	0	0		- Blocking Report (veh)	42	3	1	9	0	0

	AM Peak Hour										PM Peak Hour									
Alberts Street/Francis Avenue		EB-L	EB-T	EB-TR	WB-L	WB-T	WB-TR	NB-L	NB-LTR	SB-L	SB-TR	Alberts Street/Francis Avenue		EB-L	EB-T	EB-TR	WB-L	WB-T	WB-TR	NB-L	NB-LTR	SB-L	SB-TR
AM-1	- Queuing Penailty (%)	0%	51%	0%	2%	0%	0%	0%	11%	3%	11%	PM-1	- Queuing Penailty (%)	0%	22%	0%	2%	55%	0%	6%	73%	1%	4%
	- Blocking Report (veh)	0	9	0	5	0	0	0	8	4	8		- Blocking Report (veh)	0	7	0	13	78	0	25	136	1	1
AM-2	- Queuing Penailty (%)	0%	42%	0%	2%	0%	0%	0%	4%	2%	14%	PM-2	- Queuing Penailty (%)	0%	13%	0%	0%	54%	0%	2%	69%	0%	1%
	- Blocking Report (veh)	0	8	0	7	1	0	0	3	3	11		- Blocking Report (veh)	0	4	0	0	77	0	9	128	0	0
AM-3	- Queuing Penailty (%)	0%	59%	0%	2%	0%	0%	0%	8%	3%	13%	PM-3	- Queuing Penailty (%)	0%	18%	0%	1%	40%	0%	5%	63%	0%	1%
	- Blocking Report (veh)	0	11	0	5	1	0	0	5	4	10		- Blocking Report (veh)	0	6	0	6	57	0	22	116	0	0
AM-4	- Queuing Penailty (%)	0%	49%	0%	1%	0%	0%	0%	8%	2%	14%	PM-4	- Queuing Penailty (%)	0%	27%	0%	2%	45%	0%	5%	71%	0%	1%
	- Blocking Report (veh)	0	9	0	2	1	0	0	6	3	0.11		- Blocking Report (veh)	0	9	0	13	64	0	21	132	0	1
AM-5	- Queuing Penailty (%)	0%	54%	0%	0%	0%	0%	0%	7%	3%	15%	PM-5	- Queuing Penailty (%)	0%	23%	0%	0%	50%	0%	3%	65%	0%	2%
	- Blocking Report (veh)	0	10	0	0	1	0	0	5	5	12		- Blocking Report (veh)	0	8	0	0	70	0	14	122	0	1
AM-Avg	- Queuing Penailty (%)	0%	51%	0%	1%	0%	0%	0%	8%	3%	13%	PM-Avg	- Queuing Penailty (%)	0%	21%	0%	1%	49%	0%	4%	68%	0%	2%
	- Blocking Report (veh)	0	9	0	4	1	0	0	5	4	8		- Blocking Report (veh)	0	7	0	6	69	0	18	127	0	1

	AM Peak Hour							PM Peak Hour							
Alberta Street/Francis Avenue		EB-TT	EB-TR	WB-L	WB-TT	SB-L	SB-TT	SB-R	Alberta Street/Francis Avenue		EB-TT	EB-TR	WB-L	WB-TT	SB-L	SB-TT	SB-R
AM-1	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-1	- Queuing Penailty (%)	5%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	1	0	0	0	0	0	0		- Blocking Report (veh)	10	0	0	0	0	0	0
AM-2	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-2	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	1	0	0	0	0	0	0		- Blocking Report (veh)	0	0	2	0	0	0	0
AM-3	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-3	- Queuing Penailty (%)	0%	0%	1%	0%	0%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	3	0	0	0	0
AM-4	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-4	- Queuing Penailty (%)	1%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0		- Blocking Report (veh)	2	0	0	0	0	0	0
AM-5	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-5	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	1	0	0	0	0
AM-Avg	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-Avg	- Queuing Penailty (%)	1%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0		- Blocking Report (veh)	2	0	1	0	0	0	0

	AM Peak Hour								PM Peak Hour								
Alberta Street/Francis Avenue		EB-L	EB-TT	WB-T	WB-TR	NB-L	NB-LT	NB-T	NB-TR	Alberta Street/Francis Avenue		EB-L	EB-TT	WB-T	WB-TR	NB-L	NB-LT	NB-T	NB-TR
AM-1	- Queuing Penailty (%)	0%	0%	0%	0%	0%	1%	0%	0%	PM-1	- Queuing Penailty (%)	0%	0%	4%	0%	0%	65%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	13	0	0	118	0	0
AM-2	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	0%	PM-2	- Queuing Penailty (%)	0%	0%	10%	0%	0%	67%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	33	0	0	121	0	0
AM-3	- Queuing Penailty (%)	1%	0%	0%	0%	0%	2%	0%	0%	PM-3	- Queuing Penailty (%)	0%	0%	2%	0%	0%	62%	0%	0%
	- Blocking Report (veh)	2	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	7	0	0	113	0	0
AM-4	- Queuing Penailty (%)	0%	0%	0%	0%	0%	1%	0%	0%	PM-4	- Queuing Penailty (%)	0%	0%	4%	0%	0%	66%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	12	0	0	119	0	0
AM-5	- Queuing Penailty (%)	0%	0%	0%	0%	0%	2%	0%	0%	PM-5	- Queuing Penailty (%)	0%	0%	3%	0%	0%	66%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	10	0	0	119	0	0
AM-Avg	- Queuing Penailty (%)	0%	0%	0%	0%	0%	1%	0%	0%	PM-Avg	- Queuing Penailty (%)	0%	0%	5%	0%	0%	65%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	15	0	0	118	0	0

Future Without-Project

	AM Peak Hour, Run/Seed							PM Peak Hour, Run/Seed						
	1	2	3	4	5	Avg	HCM	1	2	3	4	5	Avg	HCM
Indian Trail/Francis Avenue	38.5	24.4	30.1	54.4	43.3	38.1	20.3	40.5	30.5	33.0	33.0	29.0	33.2	10.4
Alberta Street/Francis Avenue	71.8	80.6	74.4	78.5	76.3	76.3	65.6	142.6	120.1	135.6	131.6	131.5	132.3	53.7
Ash Street/Francis Avenue	15.5	16.9	16.5	16.9	16.6	16.5	26.1	18.5	19.5	19.6	18.8	18.5	19.0	21.3
Maple Street/Francis Avenue	11.3	10.9	11.5	10.9	12	11.3	17.6	117.6	102.3	114.0	130.8	124.8	117.9	51.4

		AM Peak Hour								PM Peak Hour						
Indian Trail/Francis Avenue		EB-L	EB-TT	WB-TT	WB-R	SB-L	SB-LR	Indian Trail/Francis Avenue		EB-L	EB-TT	WB-TT	WB-R	SB-L	SB-LR
AM-1	- Queuing Penailty (%)	5%	1%	0%	0%	0%	0%	PM-1	- Queuing Penailty (%)	31%	2%	0%	24%	0%	0%
	- Blocking Report (veh)	13	1	0	0	0	0		- Blocking Report (veh)	71	4	0	76	0	0
AM-2	- Queuing Penailty (%)	4%	4%	0%	0%	0%	0%	PM-2	- Queuing Penailty (%)	14%	2%	0%	11%	0%	0%
	- Blocking Report (veh)	12	3	0	0	0	0		- Blocking Report (veh)	34	3	4	34	0	0
AM-3	- Queuing Penailty (%)	2%	2%	0%	0%	0%	0%	PM-3	- Queuing Penailty (%)	23%	3%	1%	14%	0%	0%
	- Blocking Report (veh)	5	2	0	0	0	0		- Blocking Report (veh)	53	5	10	46	0	0
AM-4	- Queuing Penailty (%)	2%	2%	0%	0%	0%	0%	PM-4	- Queuing Penailty (%)	22%	3%	0%	13%	0%	0%
	- Blocking Report (veh)	7	2	0	0	0	0		- Blocking Report (veh)	51	4	2	41	0	0
AM-5	- Queuing Penailty (%)	1%	2%	0%	0%	0%	0%	PM-5	- Queuing Penailty (%)	29%	3%	0%	8%	0%	0%
	- Blocking Report (veh)	2	2	0	0	0	0		- Blocking Report (veh)	67	5	5	25	0	0
AM-Avg	- Queuing Penailty (%)	3%	2%	0%	0%	0%	0%	PM-Avg	- Queuing Penailty (%)	24%	3%	0%	14%	0%	0%
	- Blocking Report (veh)	8	2	0	0	0	0		- Blocking Report (veh)	55	4	4	44	0	0

		AM Peak Hour										PM Peak Hour									
Alberts Street/Francis Avenue		EB-L	EB-T	EB-TR	WB-L	WB-T	WB-TR	NB-L	NB-LTR	SB-L	SB-TR	Alberts Street/Francis Avenue		EB-L	EB-T	EB-TR	WB-L	WB-T	WB-TR	NB-L	NB-LTR	SB-L	SB-TR
AM-1	- Queuing Penailty (%)	0%	58%	0%	13%	0%	0%	0%	9%	4%	10%	PM-1	- Queuing Penailty (%)	0%	27%	0%	4%	51%	0%	3%	73%	0%	0%
	- Blocking Report (veh)	0	16	0	40	1	0	0	8	5	8		- Blocking Report (veh)	0	11	0	28	74	0	15	157	0	0
AM-2	- Queuing Penailty (%)	0%	59%	0%	1%	1%	0%	0%	4%	3%	15%	PM-2	- Queuing Penailty (%)	0%	32%	0%	7%	48%	0%	4%	70%	0%	0%
	- Blocking Report (veh)	0	16	0	2	2	0	0	4	4	12		- Blocking Report (veh)	0	12	0	51	70	0	18	151	0	0
AM-3	- Queuing Penailty (%)	0%	60%	0%	0%	1%	0%	0%	10%	8%	4%	PM-3	- Queuing Penailty (%)	0%	43%	0%	8%	46%	0%	2%	68%	0%	4%
	- Blocking Report (veh)	0	16	0	1	1	0	0	9	7	4		- Blocking Report (veh)	0	17	0	59	66	0	8	147	0	2
AM-4	- Queuing Penailty (%)	0%	57%	0%	1%	2%	0%	0%	10%	2%	17%	PM-4	- Queuing Penailty (%)	0%	34%	0%	3%	52%	0%	8%	71%	2%	7%
	- Blocking Report (veh)	0	15	0	3	3	0	0	9	4	13		- Blocking Report (veh)	0	13	0	23	75	0	37	154	2	3
AM-5	- Queuing Penailty (%)	0%	57%	0%	1%	2%	0%	0%	9%	0%	17%	PM-5	- Queuing Penailty (%)	0%	36%	0%	3%	48%	0%	6%	72%	0%	4%
	- Blocking Report (veh)	0	15	0	3	2	0	0	8	0	14		- Blocking Report (veh)	0	14	0	25	70	0	27	154	0	1
AM-Avg	- Queuing Penailty (%)	0%	58%	0%	3%	1%	0%	0%	8%	3%	13%	PM-Avg	- Queuing Penailty (%)	0%	34%	0%	5%	49%	0%	5%	71%	0%	3%
	- Blocking Report (veh)	0	16	0	10	2	0	0	8	4	10		- Blocking Report (veh)	0	13	0	37	71	0	21	153	0	1

		AM Peak Hour							PM Peak Hour							
Alberta Street/Francis Avenue		EB-TT	EB-TR	WB-L	WB-TT	SB-L	SB-TT	SB-R	Alberta Street/Francis Avenue		EB-TT	EB-TR	WB-L	WB-TT	SB-L	SB-TT	SB-R
AM-1	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-1	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	0	0	0	0	0
AM-2	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-2	- Queuing Penailty (%)	1%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0		- Blocking Report (veh)	1	0	0	0	0	0	0
AM-3	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-3	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0		- Blocking Report (veh)	1	0	0	0	0	0	0
AM-4	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-4	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	1	0	0	0	0
AM-5	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-5	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	0	0	0	0	0
AM-Avg	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	PM-Avg	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	0	0	0	0	0

		AM Peak Hour								PM Peak Hour							
Alberta Street/Francis Avenue		EB-L	EB-TT	WB-T	WB-TR	NB-L	NB-LT	NB-T	NB-TR	Alberta Street/Francis Avenue		EB-L	EB-TT	WB-T	WB-TR	NB-L	NB-LT	NB-T	NB-TR
AM-1	- Queuing Penailty (%)	0%	0%	0%	0%	0%	2%	0%	0%	PM-1	- Queuing Penailty (%)	0%	0%	0%	0%	0%	73%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	137	0	0	154	0	0
AM-2	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	0%	PM-2	- Queuing Penailty (%)	0%	0%	35%	0%	0%	65%	0%	0%
	- Blocking Report (veh)	2	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	127	0	0	137	0	0
AM-3	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%	0%	PM-3	- Queuing Penailty (%)	0%	0%	39%	0%	0%	69%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	144	0	0	146	0	0
AM-4	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	2%	0%	PM-4	- Queuing Penailty (%)	0%	0%	52%	0%	0%	72%	0%	0%
	- Blocking Report (veh)	2	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	188	0	0	152	0	0
AM-5	- Queuing Penailty (%)	0%	0%	0%	0%	0%	1%	0%	0%	PM-5	- Queuing Penailty (%)	0%	0%	20%	0%	0%	64%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	74	0	0	135	0	0
AM-Avg	- Queuing Penailty (%)	0%	0%	0%	0%	0%	1%	0%	0%	PM-Avg	- Queuing Penailty (%)	0%	0%	29%	0%	0%	69%	0%	0%
	- Blocking Report (veh)	1	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	134	0	0	145	0	0

Future Wit-Project

	AM Peak Hour, Run/Seed							PM Peak Hour, Run/Seed						
	1	2	3	4	5	Avg	HCM	1	2	3	4	5	Avg	HCM
Indian Trail/Francis Avenue	35.7	52.8	46.8	41.9	40.2	43.5	29.6	36.2	40.4	35.3	37.5	34.3	36.7	10.7
Alberta Street/Francis Avenue	69.8	82.2	75.3	78.2	74.7	76.0	78.3	128.6	162.9	155.6	172.7	129.7	149.9	59.4
Ash Street/Francis Avenue	21.2	17.7	19.2	19.1	20.1	19.5	28.9	17.8	27.2	22.3	17.1	18.8	20.6	21.5
Maple Street/Francis Avenue	12.6	11.8	11.2	11.9	11.6	11.8	17.6	115.8	97.0	135.5	115.9	119.9	116.8	54.0

		AM Peak Hour								PM Peak Hour						
Indian Trail/Francis Avenue		EB-L	EB-TT	WB-TT	WB-R	SB-L	SB-LR	Indian Trail/Francis Avenue		EB-L	EB-TT	WB-TT	WB-R	SB-L	SB-LR
AM-1	- Queuing Penailty (%)	4%	3%	0%	0%	0%	0%	PM-1	- Queuing Penailty (%)	16%	3%	0%	16%	0%	0%
	- Blocking Report (veh)	10	2	0	0	0	0		- Blocking Report (veh)	37	6	3	50	0	0
AM-2	- Queuing Penailty (%)	6%	3%	0%	0%	0%	0%	PM-2	- Queuing Penailty (%)	32%	2%	0%	20%	0%	0%
	- Blocking Report (veh)	16	3	0	0	0	0		- Blocking Report (veh)	74	3	5	63	0	0
AM-3	- Queuing Penailty (%)	8%	1%	0%	0%	0%	0%	PM-3	- Queuing Penailty (%)	32%	2%	1%	16%	0%	0%
	- Blocking Report (veh)	22	1	0	0	0	0		- Blocking Report (veh)	74	4	11	52	0	0
AM-4	- Queuing Penailty (%)	5%	2%	0%	0%	0%	0%	PM-4	- Queuing Penailty (%)	21%	2%	0%	16%	0%	0%
	- Blocking Report (veh)	15	2	0	0	0	0		- Blocking Report (veh)	48	4	5	52	0	0
AM-5	- Queuing Penailty (%)	2%	3%	0%	0%	0%	0%	PM-5	- Queuing Penailty (%)	25%	1%	1%	16%	0%	0%
	- Blocking Report (veh)	4	3	0	0	0	0		- Blocking Report (veh)	57	3	8	50	0	0
AM-Avg	- Queuing Penailty (%)	5%	2%	0%	0%	0%	0%	PM-Avg	- Queuing Penailty (%)	25%	2%	0%	17%	0%	0%
	- Blocking Report (veh)	13	2	0	0	0	0		- Blocking Report (veh)	58	4	6	53	0	0

		AM Peak Hour										PM Peak Hour									
Alberts Street/Francis Avenue		EB-L	EB-T	EB-TR	WB-L	WB-T	WB-TR	NB-L	NB-LTR	SB-L	SB-TR	Alberts Street/Francis Avenue		EB-L	EB-T	EB-TR	WB-L	WB-T	WB-TR	NB-L	NB-LTR	SB-L	SB-TR
AM-1	- Queuing Penailty (%)	0%	59%	0%	3%	1%	0%	1%	9%	3%	9%	PM-1	- Queuing Penailty (%)	0%	36%	0%	0%	48%	0%	2%	71%	0%	1%
	- Blocking Report (veh)	0	19	0	10	1	0	2	8	5	7		- Blocking Report (veh)	0	15	0	0	78	0	11	157	0	1
AM-2	- Queuing Penailty (%)	0%	60%	0%	9%	1%	0%	0%	9%	2%	13%	PM-2	- Queuing Penailty (%)	0%	36%	0%	3%	52%	0%	4%	74%	1%	2%
	- Blocking Report (veh)	0	19	0	29	1	0	0	8	3	10		- Blocking Report (veh)	0	15	0	23	75	0	18	163	1	1
AM-3	- Queuing Penailty (%)	0%	59%	0%	7%	1%	0%	0%	5%	4%	17%	PM-3	- Queuing Penailty (%)	0%	36%	0%	3%	54%	0%	4%	69%	0%	3%
	- Blocking Report (veh)	0	19	0	22	1	0	0	4	6	14		- Blocking Report (veh)	0	15	0	23	79	0	17	152	0	1
AM-4	- Queuing Penailty (%)	0%	60%	0%	5%	0%	0%	0%	10%	3%	11%	PM-4	- Queuing Penailty (%)	0%	34%	0%	4%	54%	0%	0%	73%	0%	2%
	- Blocking Report (veh)	0	19	0	15	0	0	0	9	4	9		- Blocking Report (veh)	0	14	0	28	78	0	1	162	0	1
AM-5	- Queuing Penailty (%)	0%	60%	0%	1%	3%	0%	0%	7%	1%	15%	PM-5	- Queuing Penailty (%)	0%	24%	0%	6%	44%	0%	6%	71%	0%	1%
	- Blocking Report (veh)	0	19	0	2	4	0	0	6	2	12		- Blocking Report (veh)	0	10	0	45	65	0	28	157	0	0
AM-Avg	- Queuing Penailty (%)	0%	60%	0%	5%	1%	0%	0%	8%	3%	13%	PM-Avg	- Queuing Penailty (%)	0%	33%	0%	3%	50%	0%	3%	72%	0%	2%
	- Blocking Report (veh)	0	19	0	16	1	0	0	7	4	10		- Blocking Report (veh)	0	14	0	24	75	0	15	158	0	1

		AM Peak Hour							PM Peak Hour							
Alberta Street/Francis Avenue		EB-TT	EB-TR	WB-L	WB-TT	SB-L	SB-TT	SB-R	Alberta Street/Francis Avenue		EB-TT	EB-TR	WB-L	WB-TT	SB-L	SB-TT	SB-R
AM-1	- Queuing Penailty (%)	0%	2%	0%	0%	0%	0%	0%	PM-1	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	9	0	0	0	0	0		- Blocking Report (veh)	0	0	2	0	0	0	0
AM-2	- Queuing Penailty (%)	0%	1%	0%	0%	0%	0%	0%	PM-2	- Queuing Penailty (%)	7%	0%	0%	0%	0%	0%	6%
	- Blocking Report (veh)	0	4	0	0	0	0	0		- Blocking Report (veh)	17	0	0	0	0	2	17
AM-3	- Queuing Penailty (%)	0%	2%	0%	0%	0%	0%	0%	PM-3	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	1%
	- Blocking Report (veh)	1	10	0	0	0	0	0		- Blocking Report (veh)	0	0	0	0	0	0	3
AM-4	- Queuing Penailty (%)	0%	1%	0%	0%	0%	0%	0%	PM-4	- Queuing Penailty (%)	0%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	0	4	0	0	0	0	0		- Blocking Report (veh)	0	0	0	0	0	0	0
AM-5	- Queuing Penailty (%)	0%	2%	0%	0%	0%	0%	0%	PM-5	- Queuing Penailty (%)	2%	0%	0%	0%	0%	0%	0%
	- Blocking Report (veh)	1	11	0	0	0	0	0		- Blocking Report (veh)	4	0	0	0	0	0	0
AM-Avg	- Queuing Penailty (%)	0%	2%	0%	0%	0%	0%	0%	PM-Avg	- Queuing Penailty (%)	2%	0%	0%	0%	0%	0%	1%
	- Blocking Report (veh)	0	8	0	0	0	0	0		- Blocking Report (veh)	4	0	0	0	0	0	4

		AM Peak Hour								PM Peak Hour							
Alberta Street/Francis Avenue		EB-L	EB-TT	WB-T	WB-TR	NB-L	NB-LT	NB-T	NB-TR	Alberta Street/Francis Avenue		EB-L	EB-TT	WB-T	WB-TR	NB-L	NB-LT	NB-T	NB-TR
AM-1	- Queuing Penailty (%)	0%	0%	0%	0%	0%	2%	0%	0%	PM-1	- Queuing Penailty (%)	0%	0%	14%	0%	0%	75%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	51	0	0	162	0	0
AM-2	- Queuing Penailty (%)	0%	0%	0%	0%	0%	2%	0%	0%	PM-2	- Queuing Penailty (%)	0%	0%	53%	0%	0%	76%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	196	0	0	163	0	0
AM-3	- Queuing Penailty (%)	0%	0%	0%	0%	0%	2%	0%	0%	PM-3	- Queuing Penailty (%)	0%	0%	42%	0%	0%	72%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	158	0	0	154	0	0
AM-4	- Queuing Penailty (%)	0%	0%	0%	0%	0%	3%	0%	0%	PM-4	- Queuing Penailty (%)	0%	0%	37%	0%	0%	70%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	141	0	0	150	0	0
AM-5	- Queuing Penailty (%)	0%	0%	0%	0%	0%	2%	0%	0%	PM-5	- Queuing Penailty (%)	0%	0%	33%	0%	0%	67%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	118	0	0	145	0	0
AM-Avg	- Queuing Penailty (%)	0%	0%	0%	0%	0%	2%	0%	0%	PM-Avg	- Queuing Penailty (%)	0%	0%	36%	0%	0%	72%	0%	0%
	- Blocking Report (veh)	0	0	0	0	0	0	0	0		- Blocking Report (veh)	0	0	133	0	0	155	0	0

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.7	0.0	0.0	0.2	0.0	0.0	0.0	0.1
Total Del/Veh (s)	19.6	11.7	6.7	4.8	19.5	1.2	11.0	13.5

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.3	3.9	0.4	0.4
Total Del/Veh (s)	49.1	58.5	65.3	42.2	12.8	18.1	48.4	49.8	45.8	43.8	47.8	27.5

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	44.3

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	20.1	23.9	37.9	8.2	25.1	16.4	8.2	17.2

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	24.8	5.4	12.5	5.8	45.9	29.7	24.7	14.4

Total Zone Performance

Denied Del/Veh (s)	0.8
Total Del/Veh (s)	210.7

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	99	158	145	120	98	281	273
Average Queue (ft)	39	76	78	48	51	179	186
95th Queue (ft)	79	127	117	91	82	263	259
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	1	7					
Queuing Penalty (veh)	3	5					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	788	837	199	262	181	175	254	125	249
Average Queue (ft)	20	496	520	86	98	118	87	146	58	94
95th Queue (ft)	81	698	715	156	178	173	180	230	112	185
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		51		2	0		0	11	3	11
Queuing Penalty (veh)		9		5	0		0	8	4	8

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	153	340	318	153	137	132	293	201	190	218
Average Queue (ft)	54	170	201	73	71	41	143	136	133	82
95th Queue (ft)	115	304	323	130	124	114	217	196	192	140
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)		0								
Queuing Penalty (veh)		1								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	189	136	115	93	136	132	30	168	227	265
Average Queue (ft)	109	66	61	31	71	63	2	69	110	143
95th Queue (ft)	184	126	116	63	117	114	14	146	184	219
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								1		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 44

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.7	0.0	0.0	0.2	0.0	0.0	0.2	0.0
Total Del/Veh (s)	20.9	11.5	7.6	4.8	19.6	0.8	13.6	13.7

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.2	3.9	0.4	0.4
Total Del/Veh (s)	46.8	48.4	56.4	39.7	12.8	18.5	42.2	49.6	31.9	40.1	46.5	22.5

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	37.2

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.9	24.1	37.3	7.3	24.8	16.4	9.0	16.9

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	25.2	5.2	13.5	11.9	18.0	25.9	19.8	13.6

Total Zone Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	199.2

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	99	137	158	95	116	338	306
Average Queue (ft)	43	72	80	46	61	168	176
95th Queue (ft)	84	123	135	91	105	268	270
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	2	5					
Queuing Penalty (veh)	5	4					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	679	732	200	238	240	174	228	124	216
Average Queue (ft)	28	420	442	98	92	119	55	117	64	87
95th Queue (ft)	125	643	670	185	186	195	131	187	111	167
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		42		2	0		0	4	2	14
Queuing Penalty (veh)		8		7	1		0	3	3	11

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	158	306	391	132	155	152	320	180	208	141
Average Queue (ft)	50	154	185	81	57	36	157	127	137	84
95th Queue (ft)	126	266	322	126	122	106	262	180	203	136
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)		0								
Queuing Penalty (veh)		1								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	T	TR
Maximum Queue (ft)	265	162	164	92	138	194	129	183	220
Average Queue (ft)	114	77	77	34	90	89	52	95	133
95th Queue (ft)	197	132	136	74	129	161	105	156	199
Link Distance (ft)	256	256	256		287	287	1256	1256	1256
Upstream Blk Time (%)	0								
Queuing Penalty (veh)	1								
Storage Bay Dist (ft)				300					
Storage Blk Time (%)							0		
Queuing Penalty (veh)							0		

Zone Summary

Zone wide Queuing Penalty: 43

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.6	11.8	7.5	4.3	20.3	1.0	15.7	14.0

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.3	3.8	0.4	0.2
Total Del/Veh (s)	127.3	139.9	167.8	47.3	12.6	15.2	43.3	53.1	36.0	49.8	45.4	29.5

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	87.8

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.9	20.8	38.0	7.0	26.7	16.9	7.0	16.7

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	28.1	5.8	14.0	11.5	26.3	28.5	27.2	15.4

Total Zone Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	326.7

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	98	134	129	134	144	339	354
Average Queue (ft)	49	78	83	53	60	185	191
95th Queue (ft)	89	126	126	99	107	278	272
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	2	6					
Queuing Penalty (veh)	5	5					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	1207	1191	197	330	290	174	250	124	233
Average Queue (ft)	36	1007	1041	96	105	120	80	139	70	109
95th Queue (ft)	142	1361	1380	168	205	206	186	228	134	195
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		6	8							
Queuing Penalty (veh)		44	64							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)	0	59		2	0		0	8	3	13
Queuing Penalty (veh)	0	11		5	1		0	5	4	10

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	301	263	322	132	165	128	254	214	214	130
Average Queue (ft)	77	162	178	74	61	24	143	131	137	72
95th Queue (ft)	195	281	309	113	127	84	229	186	180	108
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)	0									
Queuing Penalty (veh)	0									

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	271	156	154	75	141	142	30	161	201	239
Average Queue (ft)	121	75	83	37	89	86	3	76	111	149
95th Queue (ft)	225	132	137	73	136	149	17	145	167	225
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)	1									
Queuing Penalty (veh)	2									
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								2		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 157

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.5	0.0	0.0	0.2	0.0	0.0	0.3	0.0
Total Del/Veh (s)	21.6	11.8	6.9	5.4	20.9	1.3	15.3	14.6

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.3	3.9	0.5	0.3
Total Del/Veh (s)	71.8	83.2	88.1	36.9	14.0	10.4	44.5	56.8	36.2	46.5	48.4	32.7

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	57.1

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.9	0.2	0.0	0.0	0.0	0.1
Total Del/Veh (s)	18.2	22.2	50.2	6.9	25.3	16.2	9.7	17.2

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	27.6	5.1	12.5	10.5	19.4	28.0	25.7	14.2

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	249.1

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	74	136	188	116	140	320	309
Average Queue (ft)	44	76	86	53	56	189	199
95th Queue (ft)	73	127	142	106	101	297	283
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	2	6					
Queuing Penalty (veh)	5	5					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	1194	1182	199	229	264	174	268	125	185
Average Queue (ft)	26	638	656	87	92	122	66	149	80	107
95th Queue (ft)	123	1180	1197	163	169	212	165	245	136	174
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		2	4							
Queuing Penalty (veh)		19	32							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		49		1	0		0	8	2	14
Queuing Penalty (veh)		9		2	1		0	6	3	11

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	249	252	370	245	134	141	265	223	244	203
Average Queue (ft)	60	157	188	99	53	38	163	124	138	82
95th Queue (ft)	147	256	312	188	110	104	247	200	213	153
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	T	TR
Maximum Queue (ft)	242	164	166	142	136	176	209	231	227
Average Queue (ft)	110	65	65	38	85	77	61	110	145
95th Queue (ft)	201	108	115	99	122	139	133	176	214
Link Distance (ft)	256	256	256		287	287	1256	1256	1256
Upstream Blk Time (%)	0								
Queuing Penalty (veh)	0								
Storage Bay Dist (ft)				300					
Storage Blk Time (%)							1		
Queuing Penalty (veh)							0		

Zone Summary

Zone wide Queuing Penalty: 91

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.4	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Total Del/Veh (s)	23.0	10.8	6.8	4.3	23.8	1.1	17.1	15.7

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	3.8	0.4	0.4
Total Del/Veh (s)	84.3	83.5	99.7	42.3	13.7	18.6	40.8	45.6	33.3	33.7	47.1	23.8

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	56.8

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.8	26.8	37.1	6.6	24.1	16.4	7.7	16.6

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	28.7	5.0	14.1	8.3	24.5	26.4	22.3	14.7

Total Zone Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	247.5

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	100	112	100	80	94	381	348
Average Queue (ft)	42	63	62	45	49	193	202
95th Queue (ft)	77	97	96	76	86	310	304
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	2	3					
Queuing Penalty (veh)	6	2					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	1054	1099	156	202	237	174	263	125	194
Average Queue (ft)	28	655	668	96	84	112	67	132	77	100
95th Queue (ft)	107	1062	1084	155	163	189	158	217	133	179
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		54		0	0		0	7	3	15
Queuing Penalty (veh)		10		0	1		0	5	5	12

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	249	271	321	132	112	89	271	250	223	146
Average Queue (ft)	79	150	183	73	52	21	136	119	129	75
95th Queue (ft)	162	260	303	121	99	65	217	185	186	130
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	236	117	156	75	139	159	29	187	182	220
Average Queue (ft)	132	64	69	35	89	74	1	64	120	148
95th Queue (ft)	205	109	121	71	135	135	10	140	182	217
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								2		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 40

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.8	0.0	0.0	0.0	0.3
Total Del/Veh (s)	30.2	8.2	10.4	19.3	16.8	0.4	6.0	15.1

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	2.8	1.6	0.0	0.4	0.5	0.5	4.0	0.2	0.2
Total Del/Veh (s)	32.6	35.8	35.8	128.8	122.4	149.7	186.2	204.5	196.9	48.2	47.5	26.8

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	105.0

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	23.4	24.2	32.8	5.5	30.9	23.7	23.1	18.0

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	4.1	2.5	0.0	0.0	0.0	0.0	0.0	0.9
Total Del/Veh (s)	59.9	12.2	24.7	26.0	84.4	94.5	96.9	48.9

Total Zone Performance

Denied Del/Veh (s)	5.6
Total Del/Veh (s)	683.6

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	99	162	116	175	465	280	169	175
Average Queue (ft)	71	60	63	87	124	55	74	93
95th Queue (ft)	110	120	112	153	324	235	128	143
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	20	2			0	4		
Queuing Penalty (veh)	45	3			1	11		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	406	383	200	1202	1243	174	1204	124	134
Average Queue (ft)	47	258	269	143	825	852	166	850	34	51
95th Queue (ft)	150	377	377	246	1229	1243	198	1221	78	105
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		22		2	55		6	73	1	4
Queuing Penalty (veh)		7		13	78		25	136	1	1

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	322	366	260	222	155	153	244	179	197	343
Average Queue (ft)	116	117	140	119	75	77	130	128	134	135
95th Queue (ft)	247	240	235	185	129	134	219	175	189	244
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)	5									
Queuing Penalty (veh)	10									

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	279	251	283	286	357	357	32	83	140	699	661	659
Average Queue (ft)	207	125	118	80	254	254	1	5	59	409	421	441
95th Queue (ft)	305	221	245	175	343	343	10	33	148	600	609	609
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	16	0	0	0	4	3						
Queuing Penalty (veh)	47	0	1	0	27	24						
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				0	4					65		
Queuing Penalty (veh)				0	13					118		

Zone Summary

Zone wide Queuing Penalty: 561

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.1
Total Del/Veh (s)	42.4	7.8	8.5	17.8	17.6	0.8	7.0	14.8

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.0	0.5	0.5	0.6	3.7	0.3	0.4
Total Del/Veh (s)	32.7	33.4	28.5	93.2	101.1	106.5	141.0	139.1	135.7	49.2	44.3	25.3

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	86.5

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.7	0.2	0.0	0.0	0.0	0.1
Total Del/Veh (s)	15.1	18.3	35.7	6.2	25.9	23.6	21.0	16.0

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	2.1	0.7	0.0	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	45.9	10.1	28.9	28.1	264.2	294.1	299.5	120.3

Total Zone Performance

Denied Del/Veh (s)	2.0
Total Del/Veh (s)	830.0

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	290	133	162	543	280	148	214
Average Queue (ft)	77	86	63	74	110	42	64	91
95th Queue (ft)	109	198	109	127	296	203	125	163
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	29	2				3		
Queuing Penalty (veh)	65	2				9		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	394	375	199	980	994	174	1324	92	116
Average Queue (ft)	32	220	238	138	677	713	167	715	32	49
95th Queue (ft)	111	349	359	230	910	946	208	1102	71	88
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		13		0	54		2	69	0	1
Queuing Penalty (veh)		4		0	77		9	128	0	0

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	153	192	212	264	187	172	183	237	258	322
Average Queue (ft)	62	86	114	151	91	86	102	138	145	129
95th Queue (ft)	132	170	205	264	156	162	164	203	215	228
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				2						
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	279	188	194	286	376	364	216	205	140	1345	1335	1344
Average Queue (ft)	183	100	92	172	279	284	34	27	52	1102	1092	1091
95th Queue (ft)	262	172	173	346	404	394	136	126	143	1557	1558	1554
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	3			0	10	12	0			44	32	29
Queuing Penalty (veh)	8			0	71	81	0			0	0	0
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				0	10				0	67		
Queuing Penalty (veh)				1	33				0	121		

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B476	B472	B472
Directions Served	T	T	T	T
Maximum Queue (ft)	765	766	234	234
Average Queue (ft)	255	265	21	17
95th Queue (ft)	731	749	117	97
Link Distance (ft)	691	691	219	219
Upstream Blk Time (%)	11	10	1	1
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 611

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.6	0.0	0.0	0.0	0.2
Total Del/Veh (s)	22.4	7.4	10.5	16.9	17.9	1.0	6.2	13.8

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.6	0.6	0.5	3.9	0.3	0.2
Total Del/Veh (s)	31.9	36.1	31.7	54.5	55.1	53.5	186.5	196.6	159.1	45.1	47.2	38.0

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	74.8

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.8	20.3	34.5	5.4	28.7	24.1	19.8	16.7

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	4.8	3.3	0.0	0.0	0.0	0.0	0.0	1.1
Total Del/Veh (s)	56.6	11.8	25.5	24.2	103.8	116.6	114.7	55.7

Total Zone Performance

Denied Del/Veh (s)	4.1
Total Del/Veh (s)	584.9

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	162	122	429	593	280	156	180
Average Queue (ft)	61	60	62	92	121	44	82	100
95th Queue (ft)	98	117	101	208	362	209	146	164
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	8	2			0	2		
Queuing Penalty (veh)	18	3			1	6		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	441	444	200	590	673	174	1588	95	115
Average Queue (ft)	47	244	255	137	386	421	173	943	38	54
95th Queue (ft)	136	370	383	244	570	599	182	1625	79	98
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		18		1	40		5	63	0	1
Queuing Penalty (veh)		6		6	57		22	116	0	0

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	218	236	235	264	160	173	231	202	203	302
Average Queue (ft)	73	102	126	142	65	69	118	138	142	139
95th Queue (ft)	181	202	229	236	116	132	196	197	199	244
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				1						
Queuing Penalty (veh)				3						
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	L	LT	T	TR
Maximum Queue (ft)	274	194	245	286	357	341	31	140	836	737	777
Average Queue (ft)	197	120	102	102	249	250	1	65	478	479	495
95th Queue (ft)	288	181	179	229	327	341	10	151	733	719	726
Link Distance (ft)	256	256	256		287	287	232		1256	1256	1256
Upstream Blk Time (%)	8		0	0	2	4					
Queuing Penalty (veh)	24		0	0	14	25					
Storage Bay Dist (ft)				300				115			
Storage Blk Time (%)				0	2			0	62		
Queuing Penalty (veh)				1	6			0	113		

Zone Summary

Zone wide Queuing Penalty: 420

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.8	0.0	0.0	0.0	0.3
Total Del/Veh (s)	34.7	7.2	10.2	17.2	17.6	0.3	8.5	14.5

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.0	0.0	0.7	0.6	0.9	4.1	0.1	0.3
Total Del/Veh (s)	37.3	39.5	37.4	71.9	69.3	76.3	215.0	220.9	202.6	46.7	50.5	33.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	87.7

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.1
Total Del/Veh (s)	22.0	18.3	31.2	5.6	30.3	23.2	20.2	17.3

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	5.7	3.6	0.0	0.0	0.0	0.0	0.0	1.3
Total Del/Veh (s)	63.5	14.2	25.4	26.6	112.9	129.0	130.8	61.0

Total Zone Performance

Denied Del/Veh (s)	4.8
Total Del/Veh (s)	622.0

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	282	189	152	528	280	246	250
Average Queue (ft)	72	91	73	80	121	28	98	113
95th Queue (ft)	109	207	146	133	313	167	177	199
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	21	2			0	2		
Queuing Penalty (veh)	49	3			1	5		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	386	398	200	800	824	175	1816	92	97
Average Queue (ft)	65	270	283	134	511	545	168	1071	41	50
95th Queue (ft)	190	377	393	248	743	792	205	1975	81	88
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)								3		
Queuing Penalty (veh)								0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		27		2	45		5	71	0	1
Queuing Penalty (veh)		9		13	64		21	132	0	1

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	306	339	255	214	137	167	285	200	243	243
Average Queue (ft)	115	111	120	130	82	72	123	135	138	116
95th Queue (ft)	251	239	225	205	129	130	214	201	210	208
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)	1									
Queuing Penalty (veh)	2									

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	279	260	274	286	357	394	61	139	139	808	820	804
Average Queue (ft)	235	143	137	106	248	262	3	6	55	534	533	547
95th Queue (ft)	303	229	242	269	363	371	24	48	145	752	743	749
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	18	0	0	0	4	7						
Queuing Penalty (veh)	51	1	1	0	26	48						
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				0	4					66		
Queuing Penalty (veh)				0	12					119		

Zone Summary

Zone wide Queuing Penalty: 557

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.1	0.0	0.3	0.7	0.0	0.0	0.0	0.3
Total Del/Veh (s)	28.1	7.8	8.6	19.0	18.2	1.0	8.0	14.8

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.4	0.0	1.1	1.1	0.9	4.0	0.2	0.4
Total Del/Veh (s)	36.6	37.5	32.7	109.8	112.5	103.7	223.9	227.2	239.0	30.4	45.8	17.1

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	107.8

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.7	0.1	0.0	0.0	0.0	0.1
Total Del/Veh (s)	18.3	18.3	33.1	5.7	26.7	24.1	31.3	17.7

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	5.5	3.2	0.0	0.0	0.0	0.0	0.0	1.1
Total Del/Veh (s)	51.3	11.5	23.5	22.2	234.8	260.2	255.9	106.7

Total Zone Performance

Denied Del/Veh (s)	5.1
Total Del/Veh (s)	822.7

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	220	129	362	505	280	187	208
Average Queue (ft)	66	70	61	78	152	65	80	95
95th Queue (ft)	106	153	108	179	418	261	143	157
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	15	2			0	5		
Queuing Penalty (veh)	33	2			1	16		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	400	417	200	1314	1320	174	1840	74	116
Average Queue (ft)	50	252	252	115	706	742	164	1066	28	44
95th Queue (ft)	163	361	365	233	1291	1322	217	1895	59	82
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)								2		
Queuing Penalty (veh)								0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		23		0	50		3	65		2
Queuing Penalty (veh)		8		0	70		14	122		1

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	178	240	278	256	135	138	270	242	364	371
Average Queue (ft)	71	115	131	142	78	81	114	149	155	169
95th Queue (ft)	138	217	227	247	124	122	211	234	255	312
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				1						
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	NB	NB	NB	NB	B476
Directions Served	L	T	T	T	T	TR	T	L	LT	T	TR	T
Maximum Queue (ft)	280	227	222	286	356	357	30	140	1326	1324	1282	81
Average Queue (ft)	185	116	108	92	241	253	2	75	1011	1001	1004	5
95th Queue (ft)	267	200	199	228	351	361	12	170	1328	1314	1276	34
Link Distance (ft)	256	256	256		287	287	232		1256	1256	1256	691
Upstream Blk Time (%)	4			0	3	5			2	1	1	
Queuing Penalty (veh)	11			0	21	32			0	0	0	
Storage Bay Dist (ft)				300				115				
Storage Blk Time (%)				0	3			0	66			
Queuing Penalty (veh)				0	10			0	119			

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B472
Directions Served	T	T
Maximum Queue (ft)	32	35
Average Queue (ft)	1	1
95th Queue (ft)	11	12
Link Distance (ft)	691	219
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 461

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	4.0	0.1	4.1
Total Delay (hr)	0.6	1.8	1.1	0.4	33.1	1.6	38.5

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.2	31.6	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	0.7	50.1	8.8	2.7	3.3	0.2	1.9	0.5	1.0	0.8	1.5	0.2

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	37.8
Total Delay (hr)	71.8

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	5.3	1.2	1.1	1.0	2.1	3.9	0.9	15.5

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	2.0	1.7	2.2	0.1	0.2	3.7	1.2	11.3

Total Zone Performance

Denied Delay (hr)	42.0
Total Delay (hr)	137.0

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	99	142	174	121	119	1047	1058
Average Queue (ft)	47	60	104	59	58	597	638
95th Queue (ft)	95	117	161	111	111	1126	1124
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)						0	3
Queuing Penalty (veh)						3	17
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	5	1					
Queuing Penalty (veh)	13	1					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	1196	1196	200	304	297	174	226	124	258
Average Queue (ft)	31	936	958	112	139	144	69	138	54	95
95th Queue (ft)	127	1335	1339	208	255	233	161	218	114	189
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		7	8							
Queuing Penalty (veh)		55	62							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		58		13	0		0	9	4	10
Queuing Penalty (veh)		16		40	1		0	8	5	8

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	152	276	296	177	142	75	240	249	218	196
Average Queue (ft)	59	156	171	63	57	25	138	139	143	74
95th Queue (ft)	129	278	283	137	110	67	204	206	208	142
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	261	143	168	93	162	161	30	136	212	268
Average Queue (ft)	135	79	82	32	91	73	4	74	106	150
95th Queue (ft)	221	130	126	64	141	137	19	133	160	216
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)	0									
Queuing Penalty (veh)	2									
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								2		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 230

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay (hr)	0.6	1.8	1.0	0.5	19.6	0.9	24.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	41.1	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	0.9	59.9	8.0	1.7	3.9	0.2	2.2	0.2	0.9	0.9	1.5	0.3

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	46.8
Total Delay (hr)	80.6

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	5.6	1.4	1.0	1.2	2.6	4.0	1.0	16.9

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.8	1.8	2.5	0.3	0.2	3.4	0.9	10.9

Total Zone Performance

Denied Delay (hr)	47.0
Total Delay (hr)	132.9

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	99	138	152	90	134	576	597
Average Queue (ft)	51	60	94	49	56	412	446
95th Queue (ft)	90	111	148	84	101	566	592
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	4	4					
Queuing Penalty (veh)	12	3					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	1197	1213	199	243	251	174	270	125	203
Average Queue (ft)	25	1046	1050	105	116	152	70	119	59	110
95th Queue (ft)	105	1442	1449	172	193	231	154	201	126	193
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		17	20							
Queuing Penalty (veh)		129	151							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)	0	59		1	1		0	4	3	15
Queuing Penalty (veh)	0	16		2	2		0	4	4	12

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	162	267	297	137	178	176	341	189	216	140
Average Queue (ft)	59	163	191	66	72	33	161	138	138	78
95th Queue (ft)	121	267	304	125	132	102	259	190	200	132
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	264	154	138	122	180	158	31	151	173	190
Average Queue (ft)	135	84	81	39	104	80	4	56	92	128
95th Queue (ft)	228	143	126	92	153	138	21	108	139	187
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)	0									
Queuing Penalty (veh)	2									
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								0		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 336

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.5	0.0	0.5
Total Delay (hr)	0.4	1.8	1.3	0.5	25.0	1.1	30.1

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.2	28.3	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	1.2	52.4	8.5	1.5	3.9	0.2	2.7	0.3	1.1	1.1	1.2	0.2

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	31.1
Total Delay (hr)	74.4

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	5.4	1.0	1.3	1.2	2.2	3.9	1.4	16.5

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay (hr)	1.8	1.7	2.2	0.2	0.2	4.1	1.3	11.5

Total Zone Performance

Denied Delay (hr)	31.8
Total Delay (hr)	132.5

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	90	144	159	149	135	827	826
Average Queue (ft)	42	59	105	63	65	478	518
95th Queue (ft)	87	108	155	117	112	779	790
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	2	2					
Queuing Penalty (veh)	5	2					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	1196	1193	197	217	230	174	303	124	219
Average Queue (ft)	52	960	976	90	128	157	92	147	65	82
95th Queue (ft)	163	1301	1314	145	188	227	187	234	121	159
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		7	8							
Queuing Penalty (veh)		52	64							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		60		0	1		0	10	5	4
Queuing Penalty (veh)		16		1	1		0	9	7	4

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	232	299	311	153	214	231	313	256	203	282
Average Queue (ft)	64	141	164	72	76	44	155	146	145	101
95th Queue (ft)	149	278	301	130	149	135	243	215	209	179
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)		0								
Queuing Penalty (veh)		0								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	268	152	142	93	199	178	30	163	207	264
Average Queue (ft)	134	73	77	37	98	90	5	76	116	154
95th Queue (ft)	215	131	131	76	176	167	23	138	169	227
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)	0									
Queuing Penalty (veh)	1									
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								0		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 161

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	10.5	0.6	11.1
Total Delay (hr)	0.5	2.0	1.3	0.5	47.1	3.0	54.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.8	38.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	1.0	56.9	7.8	1.6	4.0	0.2	2.4	0.4	1.1	1.0	1.6	0.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	42.8
Total Delay (hr)	78.5

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	5.9	1.5	1.4	1.4	2.4	3.3	1.1	16.9

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.9	1.5	2.4	0.2	0.2	3.7	1.0	10.9

Total Zone Performance

Denied Delay (hr)	53.9
Total Delay (hr)	160.7

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	100	124	166	142	122	1070	1061
Average Queue (ft)	43	61	111	71	69	819	842
95th Queue (ft)	84	111	160	120	114	1134	1133
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)						1	2
Queuing Penalty (veh)						9	14
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	2	2					
Queuing Penalty (veh)	7	2					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	1189	1205	199	254	248	174	313	124	313
Average Queue (ft)	50	1020	1034	95	129	156	72	151	69	126
95th Queue (ft)	175	1405	1422	166	219	238	172	257	130	221
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		13	16							
Queuing Penalty (veh)		101	121							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		57		1	2		0	10	2	17
Queuing Penalty (veh)		15		3	3		0	9	4	13

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	153	282	325	151	159	159	311	203	209	211
Average Queue (ft)	51	170	200	81	75	43	171	120	129	85
95th Queue (ft)	113	278	305	129	140	110	280	176	182	157
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)		0								
Queuing Penalty (veh)		0								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	256	119	143	107	181	157	30	147	173	240
Average Queue (ft)	134	65	68	39	102	83	3	71	97	142
95th Queue (ft)	236	111	132	85	158	146	17	126	149	222
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)	0									
Queuing Penalty (veh)	1									
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								2		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 303

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	5.1	0.0	5.2
Total Delay (hr)	0.4	1.9	1.2	0.5	37.4	1.8	43.3

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.5	27.2	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	1.3	55.0	7.6	2.1	3.7	0.1	2.1	0.4	1.1	0.9	1.5	0.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	31.5
Total Delay (hr)	76.3

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	5.8	1.4	1.2	1.1	2.4	3.6	1.1	16.6

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.7	1.9	2.5	0.3	0.2	3.9	1.4	12.0

Total Zone Performance

Denied Delay (hr)	36.7
Total Delay (hr)	148.1

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	93	149	205	132	115	1003	1012
Average Queue (ft)	45	69	109	68	66	668	716
95th Queue (ft)	69	127	174	111	104	976	986
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	1	2					
Queuing Penalty (veh)	2	2					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	1201	1203	200	253	252	174	266	125	205
Average Queue (ft)	57	993	1009	113	122	147	69	135	57	110
95th Queue (ft)	187	1420	1439	185	208	220	171	222	115	195
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		11	14							
Queuing Penalty (veh)		87	105							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)	0	57		1	2		0	9	0	17
Queuing Penalty (veh)	0	15		3	2		0	8	0	14

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	238	292	300	137	159	92	282	221	237	178
Average Queue (ft)	63	163	183	79	54	27	160	127	141	86
95th Queue (ft)	151	277	297	131	116	72	264	184	203	138
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)		0								
Queuing Penalty (veh)		0								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	201	172	132	136	182	169	38	198	183	270
Average Queue (ft)	122	84	84	43	96	85	4	68	110	156
95th Queue (ft)	203	136	124	92	160	132	22	137	163	239
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								1		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 238

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Del/Veh (s)	0.2	0.0	77.0	85.5	0.0	0.1	46.5
Total Del/Veh (s)	32.8	10.0	10.9	82.2	18.0	7.5	40.5

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	6.2	22.2	68.1	17.6	22.3	15.6	4.0	0.3	0.3
Total Del/Veh (s)	52.8	40.0	37.9	192.8	169.3	187.9	262.8	261.8	274.4	48.2	37.5	29.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	13.3
Total Del/Veh (s)	142.6

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Total Del/Veh (s)	21.7	19.5	31.4	6.5	29.7	25.9	32.1	18.5

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	4.1	1.8	0.0	0.0	0.0	0.0	0.0	0.7
Total Del/Veh (s)	57.1	11.6	44.1	50.2	285.3	253.6	243.4	117.6

Total Zone Performance

Denied Del/Veh (s)	120.2
Total Del/Veh (s)	1176.4

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	323	266	1099	1097	280	208	201
Average Queue (ft)	84	101	79	525	958	261	103	110
95th Queue (ft)	114	230	162	1268	1404	376	184	183
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)				0	6			
Queuing Penalty (veh)				1	57			
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	31	2			0	24		
Queuing Penalty (veh)	71	4			5	76		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	438	458	200	1416	1428	175	1840	73	94
Average Queue (ft)	51	279	287	133	1103	1120	173	1273	23	55
95th Queue (ft)	152	398	408	238	1711	1693	177	2039	56	93
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)					12	16		28		
Queuing Penalty (veh)					97	125		0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		27		4	51		3	73		0
Queuing Penalty (veh)		11		28	74		15	157		0

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	286	289	286	263	193	211	205	217	238	338
Average Queue (ft)	105	113	130	118	91	95	119	141	139	193
95th Queue (ft)	224	216	235	210	152	174	190	203	211	316
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				1						
Queuing Penalty (veh)				3						
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)	0	0								
Queuing Penalty (veh)	0	0								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	273	244	253	286	405	357	324	306	140	1336	1325	1326
Average Queue (ft)	212	117	107	209	340	343	174	164	71	1110	1081	1032
95th Queue (ft)	293	197	207	390	420	401	382	354	166	1581	1580	1534
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	11	0	0	0	38	44	16	12		36	22	18
Queuing Penalty (veh)	36	0	0	0	284	334	120	92		0	0	0
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				0	38					73		
Queuing Penalty (veh)				1	136					154		

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B476	B472	B472
Directions Served	T	T	T	T
Maximum Queue (ft)	765	766	234	234
Average Queue (ft)	217	227	34	29
95th Queue (ft)	717	740	163	151
Link Distance (ft)	691	691	219	219
Upstream Blk Time (%)	14	14	7	7
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 1881

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Del/Veh (s)	0.1	0.0	19.0	21.0	0.0	0.0	11.7
Total Del/Veh (s)	28.8	8.8	13.1	54.6	20.2	10.8	30.5

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.5	0.0	0.0	0.9	0.5	0.1	93.7	80.2	90.2	3.9	0.3	0.1
Total Del/Veh (s)	61.7	40.7	35.5	120.0	91.6	114.9	329.4	336.3	332.9	31.8	41.6	23.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	18.0
Total Del/Veh (s)	120.1

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	23.3	22.1	30.1	5.4	30.0	25.0	36.8	19.5

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	7.2	3.4	0.0	0.0	0.0	0.0	0.0	1.3
Total Del/Veh (s)	61.0	13.1	42.3	45.0	223.8	224.9	233.2	102.3

Total Zone Performance

Denied Del/Veh (s)	68.1
Total Del/Veh (s)	1032.8

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	178	136	952	1091	280	208	202
Average Queue (ft)	70	65	65	193	457	140	117	133
95th Queue (ft)	103	126	108	568	1130	371	184	205
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)					1			
Queuing Penalty (veh)					5			
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	14	2			0	11		
Queuing Penalty (veh)	34	3			4	34		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	396	433	200	930	984	175	1854	70	95
Average Queue (ft)	54	297	310	152	686	719	169	1656	26	45
95th Queue (ft)	152	392	398	241	966	1007	196	2274	61	85
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)								73		
Queuing Penalty (veh)								0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)	0	32		7	48		4	70		0
Queuing Penalty (veh)	0	12		51	70		18	151		0

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	320	321	286	262	141	118	222	242	237	369
Average Queue (ft)	108	135	146	134	80	63	135	135	136	229
95th Queue (ft)	248	262	252	223	125	113	213	203	196	371
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				2						
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)	1	0								
Queuing Penalty (veh)	1	0								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	297	251	266	286	376	394	305	344	140	1326	1325	1323
Average Queue (ft)	221	134	128	193	317	317	163	153	58	931	898	895
95th Queue (ft)	299	216	233	370	430	440	373	365	151	1513	1496	1463
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	14	0	0	0	35	39	16	13		16	7	5
Queuing Penalty (veh)	43	0	0	0	262	294	122	101		0	0	0
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				0	35					65		
Queuing Penalty (veh)				2	125					137		

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B476
Directions Served	T	T
Maximum Queue (ft)	178	137
Average Queue (ft)	20	12
95th Queue (ft)	92	70
Link Distance (ft)	691	691
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1472

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Del/Veh (s)	0.2	0.0	67.4	61.3	0.0	0.0	35.4
Total Del/Veh (s)	29.5	9.2	12.0	64.8	19.2	9.0	33.0

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.1	9.9	20.5	0.2	78.7	76.7	68.0	3.9	0.2	0.3
Total Del/Veh (s)	88.6	54.7	56.8	150.3	131.7	121.1	299.9	323.7	311.8	47.4	47.0	29.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	23.2
Total Del/Veh (s)	135.6

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.5	0.1	0.0	0.0	0.1	0.1
Total Del/Veh (s)	24.4	22.2	30.6	5.3	31.7	26.1	35.0	19.6

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	4.6	2.6	0.0	0.0	0.0	0.0	0.0	0.9
Total Del/Veh (s)	62.0	12.9	45.5	47.4	245.2	261.4	249.7	114.0

Total Zone Performance

Denied Del/Veh (s)	125.8
Total Del/Veh (s)	1112.1

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	99	184	141	1072	1087	280	234	249
Average Queue (ft)	79	77	74	345	775	242	109	135
95th Queue (ft)	109	146	124	910	1347	399	186	215
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)				0	1			
Queuing Penalty (veh)				0	14			
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	23	3			1	14		
Queuing Penalty (veh)	53	5			10	46		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	635	585	199	1400	1401	174	1836	124	223
Average Queue (ft)	72	367	369	153	907	932	170	1427	32	69
95th Queue (ft)	197	551	548	243	1607	1606	189	2392	76	154
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)					6	7		62		
Queuing Penalty (veh)					43	58		0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		43		8	46		2	68		4
Queuing Penalty (veh)		17		59	66		8	147		2

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	298	292	295	203	157	120	280	262	284	391
Average Queue (ft)	117	125	138	111	76	62	131	135	149	209
95th Queue (ft)	240	249	259	184	132	114	220	216	220	344
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)	0	0								0
Queuing Penalty (veh)	1	0								0

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	282	266	258	286	395	376	324	305	140	1326	1336	1328
Average Queue (ft)	226	141	135	214	352	350	161	145	51	1004	998	996
95th Queue (ft)	299	239	241	387	394	388	347	339	148	1487	1482	1465
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	18	0	0	0	39	43	11	9		29	24	22
Queuing Penalty (veh)	58	1	0	0	298	322	81	66		0	0	0
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				0	39				0	69		
Queuing Penalty (veh)				1	143				0	146		

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B476	B472	B472
Directions Served	T	T	T	T
Maximum Queue (ft)	765	803	234	253
Average Queue (ft)	224	224	45	38
95th Queue (ft)	771	771	194	180
Link Distance (ft)	691	691	219	219
Upstream Blk Time (%)	20	18	13	13
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 1647

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Del/Veh (s)	0.2	0.0	18.9	46.7	0.0	0.1	21.9
Total Del/Veh (s)	33.7	7.7	14.2	61.1	18.8	9.9	33.0

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	2.9	1.3	6.2	51.1	46.9	36.4	3.9	0.4	0.4
Total Del/Veh (s)	70.2	47.0	45.1	135.2	111.7	118.4	328.0	343.1	315.4	51.4	45.9	38.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	10.0
Total Del/Veh (s)	131.6

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.1
Total Del/Veh (s)	24.5	24.2	32.5	5.4	30.2	25.2	27.5	18.8

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	8.0	4.0	0.0	0.0	0.0	0.0	0.0	1.5
Total Del/Veh (s)	67.5	14.8	51.6	56.1	271.1	309.9	307.3	130.8

Total Zone Performance

Denied Del/Veh (s)	64.9
Total Del/Veh (s)	1200.7

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	303	150	1064	1112	280	218	263
Average Queue (ft)	72	75	61	225	706	196	113	128
95th Queue (ft)	109	193	102	748	1427	408	184	210
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)				0	4			
Queuing Penalty (veh)				0	34			
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	22	3			0	13		
Queuing Penalty (veh)	51	4			2	41		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	546	515	200	1193	1200	174	1840	124	183
Average Queue (ft)	65	320	340	126	835	857	168	1658	34	65
95th Queue (ft)	191	484	494	238	1038	1071	208	2089	84	134
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)								46		
Queuing Penalty (veh)								0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		34		3	52		8	71	2	7
Queuing Penalty (veh)		13		23	75		37	154	2	3

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	236	244	288	267	139	146	181	229	256	317
Average Queue (ft)	118	124	141	129	79	76	124	138	142	155
95th Queue (ft)	243	239	259	225	128	121	179	203	207	266
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				1						
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	283	262	274	286	376	405	305	306	140	1345	1325	1345
Average Queue (ft)	238	139	134	234	359	364	249	249	70	1127	1132	1124
95th Queue (ft)	315	237	228	387	367	385	360	361	159	1605	1603	1568
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	22	0	0	0	52	60	25	24		49	39	31
Queuing Penalty (veh)	70	1	1	0	391	450	186	185		0	0	0
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				0	52				0	72		
Queuing Penalty (veh)				1	187				0	152		

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B476	B472	B472
Directions Served	T	T	T	T
Maximum Queue (ft)	789	803	271	253
Average Queue (ft)	347	354	72	70
95th Queue (ft)	935	941	253	248
Link Distance (ft)	691	691	219	219
Upstream Blk Time (%)	29	30	25	26
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 2063

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Del/Veh (s)	0.1	0.0	15.4	19.0	0.0	0.0	10.1
Total Del/Veh (s)	33.9	9.1	12.2	50.7	20.3	10.1	29.0

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.8	2.2	9.3	122.6	116.3	111.9	4.0	0.2	0.2
Total Del/Veh (s)	72.8	45.7	45.0	132.6	105.9	122.2	347.1	369.9	344.2	29.8	48.3	35.8

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	24.3
Total Del/Veh (s)	131.5

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.1	0.3	0.1	0.0	0.0	0.0	0.1
Total Del/Veh (s)	19.3	26.3	35.5	6.1	28.5	24.4	31.2	18.5

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	3.7	1.5	0.0	0.0	0.0	0.0	0.0	0.6
Total Del/Veh (s)	51.1	11.4	35.0	37.5	282.2	306.1	317.9	124.8

Total Zone Performance

Denied Del/Veh (s)	72.0
Total Del/Veh (s)	1166.7

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	99	206	171	1130	1096	280	185	244
Average Queue (ft)	80	87	62	234	537	170	111	127
95th Queue (ft)	112	183	107	788	1249	387	172	197
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)				1	3			
Queuing Penalty (veh)				5	25			
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	29	3			0	8		
Queuing Penalty (veh)	67	5			5	25		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	448	477	200	1352	1357	175	1835	125	180
Average Queue (ft)	53	326	329	137	775	805	171	1680	32	70
95th Queue (ft)	149	443	452	228	1281	1322	193	2137	75	127
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)								75		
Queuing Penalty (veh)								0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)	0	36		3	48		6	72	0	4
Queuing Penalty (veh)	0	14		25	70		27	154	0	1

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	178	273	294	267	170	203	313	219	265	344
Average Queue (ft)	72	132	163	149	91	78	122	131	150	196
95th Queue (ft)	144	236	270	250	152	148	215	208	236	349
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				2						
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	285	211	197	286	381	364	324	236	140	1350	1344	1340
Average Queue (ft)	205	121	105	180	316	313	63	53	81	1160	1149	1146
95th Queue (ft)	285	192	177	362	424	411	193	161	176	1535	1533	1520
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	6			0	20	23	1	0		50	37	34
Queuing Penalty (veh)	18			0	154	174	7	2		0	0	0
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				0	20				0	64		
Queuing Penalty (veh)				1	74				0	135		

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B476	B472	B472
Directions Served	T	T	T	T
Maximum Queue (ft)	789	813	234	258
Average Queue (ft)	339	351	75	80
95th Queue (ft)	918	931	251	267
Link Distance (ft)	691	691	219	219
Upstream Blk Time (%)	33	33	24	25
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 992

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	22.3	0.7	23.1
Total Delay (hr)	0.6	1.8	1.3	0.6	38.7	1.7	44.6

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.9	59.3	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	1.0	55.9	8.4	1.9	4.1	0.1	2.3	0.3	1.1	1.3	1.8	0.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	70.6
Total Delay (hr)	78.7

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	9.1	1.8	1.2	1.3	2.2	3.9	1.2	20.8

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.7	1.6	3.3	0.3	0.2	4.1	0.9	12.0

Total Zone Performance

Denied Delay (hr)	93.7
Total Delay (hr)	156.1

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	99	124	181	136	138	907	922
Average Queue (ft)	48	62	105	66	68	679	709
95th Queue (ft)	79	109	161	117	121	937	934
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	1	1					
Queuing Penalty (veh)	4	1					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	1195	1208	199	226	252	174	268	125	333
Average Queue (ft)	43	1020	1029	118	125	152	75	135	77	119
95th Queue (ft)	160	1320	1322	191	202	230	168	206	130	231
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		11	13							
Queuing Penalty (veh)		87	97							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		60		2	1		0	8	4	17
Queuing Penalty (veh)		19		5	2		0	7	6	13

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	324	423	468	189	136	168	309	257	269	138
Average Queue (ft)	111	242	261	79	55	36	151	135	154	85
95th Queue (ft)	273	364	389	152	106	98	262	213	222	139
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)	0	2								
Queuing Penalty (veh)	0	8								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	221	104	117	96	229	194	48	155	225	244
Average Queue (ft)	132	59	58	42	135	120	5	79	113	147
95th Queue (ft)	209	92	104	97	200	179	24	143	187	231
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								2		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 249

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	5.9	0.2	6.2
Total Delay (hr)	0.5	1.8	1.2	0.6	33.4	1.4	39.0

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	1.1	67.8	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	1.3	52.7	8.7	1.8	4.1	0.1	2.8	0.4	1.4	1.3	1.3	0.3

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	73.8
Total Delay (hr)	76.2

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	8.7	1.7	1.1	1.0	2.1	3.9	1.0	19.6

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.6	1.6	3.0	0.3	0.2	3.5	0.9	11.1

Total Zone Performance

Denied Delay (hr)	80.0
Total Delay (hr)	146.0

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	99	155	158	94	96	799	872
Average Queue (ft)	45	60	98	55	65	620	647
95th Queue (ft)	84	121	144	90	93	855	890
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	2	2					
Queuing Penalty (veh)	6	1					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	1200	1198	199	210	227	174	268	125	227
Average Queue (ft)	47	981	1004	105	123	163	91	154	74	103
95th Queue (ft)	147	1308	1318	171	191	228	196	235	133	202
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		7	7							
Queuing Penalty (veh)		52	55							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)	0	59		0	1		1	15	6	11
Queuing Penalty (veh)	0	19		1	2		1	13	8	9

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	324	462	405	148	147	139	263	256	279	205
Average Queue (ft)	97	216	226	76	54	37	158	138	151	81
95th Queue (ft)	233	370	365	130	101	103	230	216	235	150
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)		2								
Queuing Penalty (veh)		10								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	231	117	100	121	190	227	31	136	164	221
Average Queue (ft)	136	59	65	40	113	106	4	70	102	128
95th Queue (ft)	217	99	109	91	170	174	20	121	153	202
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								1		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 177

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	14.6	0.4	15.0
Total Delay (hr)	0.5	1.9	0.9	0.5	36.8	1.5	42.2

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	1.4	61.1	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	1.0	50.2	7.4	2.1	4.0	0.2	2.1	0.5	1.1	1.1	1.3	0.2

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	69.6
Total Delay (hr)	71.2

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	9.8	1.9	1.0	1.0	2.4	3.7	1.3	21.1

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.7	1.6	3.0	0.3	0.2	3.8	1.0	11.5

Total Zone Performance

Denied Delay (hr)	84.6
Total Delay (hr)	146.0

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	100	142	230	130	116	868	833
Average Queue (ft)	54	75	108	59	47	657	680
95th Queue (ft)	93	137	173	108	89	909	913
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	4	4					
Queuing Penalty (veh)	10	3					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	1172	1200	199	226	244	174	360	125	202
Average Queue (ft)	31	950	968	106	122	155	71	140	65	89
95th Queue (ft)	127	1269	1290	178	205	234	157	234	119	163
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		0	1							
Queuing Penalty (veh)		3	8							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)	0	58		2	1		0	8	5	8
Queuing Penalty (veh)	0	18		7	2		0	7	7	7

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	324	476	509	150	165	124	358	211	203	196
Average Queue (ft)	100	243	261	70	46	28	164	131	134	87
95th Queue (ft)	234	390	420	117	110	99	285	198	192	152
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)	0	2								
Queuing Penalty (veh)	0	8								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	267	124	115	134	172	182	30	163	210	322
Average Queue (ft)	134	53	58	41	124	109	4	78	102	144
95th Queue (ft)	210	103	111	100	176	174	21	141	161	237
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)	1									
Queuing Penalty (veh)	3									
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								3		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 84

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	21.0	1.3	22.4
Total Delay (hr)	0.5	1.6	1.0	0.5	38.3	2.1	44.0

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	1.5	35.2	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	0.9	41.1	6.6	1.8	4.2	0.2	2.7	0.4	1.0	1.2	1.7	0.2

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	43.9
Total Delay (hr)	61.9

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay (hr)	7.9	2.0	1.2	1.2	2.0	3.9	1.2	19.4

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.5	1.4	3.2	0.3	0.2	4.0	1.0	11.7

Total Zone Performance

Denied Delay (hr)	66.4
Total Delay (hr)	136.9

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	98	132	172	119	116	849	870
Average Queue (ft)	46	59	95	50	60	675	715
95th Queue (ft)	84	104	155	91	97	900	941
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	3	3					
Queuing Penalty (veh)	8	2					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	1169	1178	198	249	244	174	245	125	288
Average Queue (ft)	44	821	845	102	128	148	93	142	71	111
95th Queue (ft)	159	1242	1255	155	209	221	180	216	131	196
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		0	0							
Queuing Penalty (veh)		0	1							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)	0	56		0	0		0	6	4	15
Queuing Penalty (veh)	0	18		0	1		0	5	6	12

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	324	366	428	157	169	127	267	229	247	203
Average Queue (ft)	99	206	242	77	55	29	139	135	144	96
95th Queue (ft)	233	326	381	134	109	81	234	198	216	165
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)		1								
Queuing Penalty (veh)		6								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	227	93	116	97	184	166	30	133	170	313
Average Queue (ft)	120	58	59	43	119	105	4	78	107	152
95th Queue (ft)	200	91	117	86	165	161	19	135	158	240
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								2		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 60

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	16.3	0.6	17.0
Total Delay (hr)	0.5	1.8	1.2	0.6	36.9	1.9	42.8

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.6	39.9	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	0.9	47.9	5.9	1.8	3.9	0.2	2.3	0.3	1.0	0.7	1.4	0.3

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	50.0
Total Delay (hr)	66.7

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	8.3	1.9	1.3	1.0	2.2	3.7	1.0	19.4

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.6	1.4	3.0	0.3	0.2	3.8	1.0	11.4

Total Zone Performance

Denied Delay (hr)	67.1
Total Delay (hr)	140.3

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	93	148	208	131	141	881	902
Average Queue (ft)	45	67	96	60	66	660	696
95th Queue (ft)	79	129	154	107	122	909	921
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	2	2					
Queuing Penalty (veh)	7	2					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	1174	1173	192	223	248	174	250	125	183
Average Queue (ft)	47	893	919	99	119	146	89	153	56	108
95th Queue (ft)	161	1155	1169	151	201	227	187	234	109	175
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		0	1							
Queuing Penalty (veh)		2	4							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)	0	59		0	1		0	9	1	14
Queuing Penalty (veh)	0	19		1	2		0	8	1	11

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	318	345	364	135	143	119	287	237	221	176
Average Queue (ft)	97	221	243	80	44	23	161	133	143	85
95th Queue (ft)	226	343	367	143	94	72	239	194	209	147
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)		1								
Queuing Penalty (veh)		4								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	247	137	116	146	184	177	52	117	179	197
Average Queue (ft)	125	52	50	50	115	107	5	59	102	132
95th Queue (ft)	211	95	89	103	161	166	26	100	161	190
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)	0									
Queuing Penalty (veh)	0									
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								0		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 62

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.2	0.0	44.2	41.2	0.0	0.0	0.1	23.8
Total Del/Veh (s)	27.5	9.7	11.7	72.4	15.8	0.9	7.5	36.2

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	3.8	4.2	0.0	61.0	80.3	81.0	3.7	0.4	0.2
Total Del/Veh (s)	67.9	45.6	50.1	135.5	115.9	125.4	322.5	298.7	299.9	49.3	40.4	28.1

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	15.4
Total Del/Veh (s)	128.6

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.1
Total Del/Veh (s)	21.5	26.2	32.9	5.4	30.4	23.4	26.6	17.8

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	4.7	1.6	0.0	0.0	0.0	0.0	0.0	0.7
Total Del/Veh (s)	50.0	11.7	31.1	34.0	290.3	277.4	284.0	115.8

Total Zone Performance

Denied Del/Veh (s)	83.3
Total Del/Veh (s)	971.4

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	284	136	1114	1091	280	208	210
Average Queue (ft)	71	89	72	231	895	252	91	105
95th Queue (ft)	111	200	112	813	1425	390	161	166
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)				1	4			
Queuing Penalty (veh)				5	41			
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	16	3			0	16		
Queuing Penalty (veh)	37	6			3	50		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	483	491	200	1410	1415	175	1816	111	115
Average Queue (ft)	94	324	341	142	787	811	169	1536	34	58
95th Queue (ft)	229	458	474	248	1452	1461	211	2271	72	99
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)					5	7		52		
Queuing Penalty (veh)					41	54		0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		36		0	48		2	71	0	1
Queuing Penalty (veh)		15		0	70		11	157	0	1

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	198	254	290	260	160	154	266	257	233	362
Average Queue (ft)	86	140	161	142	74	64	133	145	141	163
95th Queue (ft)	165	252	278	241	137	122	226	219	209	282
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				2						
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	268	228	247	286	376	378	250	216	140	1363	1325	1326
Average Queue (ft)	193	121	106	172	314	313	42	41	52	1121	1086	1079
95th Queue (ft)	265	200	197	362	419	420	151	136	147	1532	1537	1510
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	3		0	0	14	19	0	0		47	34	25
Queuing Penalty (veh)	10		0	0	105	148	3	0		0	0	0
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				0	14				0	75		
Queuing Penalty (veh)				1	50				0	162		

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B476	B472	B472
Directions Served	T	T	T	T
Maximum Queue (ft)	784	803	271	253
Average Queue (ft)	311	319	58	62
95th Queue (ft)	898	911	226	229
Link Distance (ft)	691	691	219	219
Upstream Blk Time (%)	26	26	19	20
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 974

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.1	0.0	46.8	37.8	0.0	0.0	0.0	21.9
Total Del/Veh (s)	35.4	9.6	13.1	81.9	19.3	0.8	9.2	40.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	1.0	0.0	106.9	122.4	131.0	4.0	0.3	0.3
Total Del/Veh (s)	60.1	45.7	42.5	196.0	188.1	231.6	343.5	348.3	322.0	43.2	43.4	31.0

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	23.0
Total Del/Veh (s)	162.9

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	1.2	1.7	0.0	0.0	1.7	0.8
Total Del/Veh (s)	35.7	22.9	35.4	13.2	29.7	23.1	57.5	27.2

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	17.4	11.0	0.0	0.0	0.0	0.0	0.0	3.8
Total Del/Veh (s)	75.2	14.4	53.3	54.2	221.2	183.3	182.4	97.0

Total Zone Performance

Denied Del/Veh (s)	112.0
Total Del/Veh (s)	1014.3

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	339	276	1095	1109	280	183	195
Average Queue (ft)	83	97	77	251	1015	280	113	130
95th Queue (ft)	115	219	158	872	1278	280	179	187
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)				0	7			
Queuing Penalty (veh)				3	68			
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	32	2			0	20		
Queuing Penalty (veh)	74	3			5	63		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	515	516	200	1432	1431	175	1840	110	136
Average Queue (ft)	63	320	323	149	1174	1193	166	1557	31	58
95th Queue (ft)	170	460	461	242	1774	1737	205	2185	69	107
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)					14	19		54		
Queuing Penalty (veh)					113	153		0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		36		3	52		4	74	1	2
Queuing Penalty (veh)		15		23	75		18	163	1	1

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	324	436	421	275	290	284	255	199	499	425
Average Queue (ft)	199	133	153	141	131	129	129	135	204	265
95th Queue (ft)	309	291	297	244	260	268	205	192	419	439
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				1	2	4			0	
Queuing Penalty (veh)				5	9	18			2	
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)	7	0							0	6
Queuing Penalty (veh)	17	0							2	17

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	281	195	256	286	406	380	324	306	140	1326	1293	1256
Average Queue (ft)	262	125	129	247	359	359	280	273	67	827	790	788
95th Queue (ft)	301	198	231	389	396	370	388	389	167	1261	1209	1164
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	37		0	1	52	60	45	44		1	0	0
Queuing Penalty (veh)	120		0	0	409	465	352	343		0	0	0
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				1	52					76		
Queuing Penalty (veh)				2	194					163		

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B472
Directions Served	T	T
Maximum Queue (ft)	25	33
Average Queue (ft)	1	1
95th Queue (ft)	8	11
Link Distance (ft)	691	219
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 2897

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.0	0.0	20.4	28.9	0.0	0.0	0.0	14.5
Total Del/Veh (s)	40.6	9.6	12.6	67.3	20.7	1.3	10.7	35.3

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	8.0	4.1	0.0	69.4	65.0	67.0	4.0	0.1	0.3
Total Del/Veh (s)	71.2	44.8	42.3	203.8	193.5	249.6	280.9	294.0	284.6	48.4	48.9	30.2

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	15.4
Total Del/Veh (s)	155.6

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	2.1	2.9	0.0	0.0	0.0	1.2
Total Del/Veh (s)	22.7	25.1	32.8	12.8	31.5	25.0	39.1	22.3

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	6.1	2.4	0.0	0.0	0.0	0.0	0.0	1.0
Total Del/Veh (s)	61.6	11.5	48.5	50.3	322.0	308.8	321.2	135.5

Total Zone Performance

Denied Del/Veh (s)	70.3
Total Del/Veh (s)	1155.3

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	197	137	1070	1096	280	222	272
Average Queue (ft)	79	91	63	224	867	252	122	139
95th Queue (ft)	114	179	107	711	1312	391	194	218
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)				0	2			
Queuing Penalty (veh)				0	18			
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	32	2			1	16		
Queuing Penalty (veh)	74	4			11	52		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	486	458	200	1421	1430	175	1836	124	132
Average Queue (ft)	47	329	333	143	1273	1283	162	1328	42	50
95th Queue (ft)	141	431	422	244	1615	1613	212	2272	86	103
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)					15	17		37		
Queuing Penalty (veh)					124	141		0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		36		3	54		4	69	0	3
Queuing Penalty (veh)		15		23	79		17	152	0	1

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	193	274	295	265	298	301	247	229	217	422
Average Queue (ft)	89	131	150	137	138	133	135	139	146	205
95th Queue (ft)	174	244	272	229	260	262	217	207	201	355
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				1	1	1				
Queuing Penalty (veh)				3	5	5				
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)										1
Queuing Penalty (veh)										3

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	295	176	193	286	405	376	310	275	140	1363	1325	1341
Average Queue (ft)	226	114	103	234	356	348	181	159	66	1236	1224	1210
95th Queue (ft)	305	174	172	383	401	387	356	311	163	1512	1498	1496
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	16			0	42	46	13	10		59	38	34
Queuing Penalty (veh)	51			0	329	362	104	78		0	0	0
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				0	42					72		
Queuing Penalty (veh)				2	156					154		

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B476	B472	B472
Directions Served	T	T	T	T
Maximum Queue (ft)	765	789	234	234
Average Queue (ft)	343	334	24	24
95th Queue (ft)	836	827	140	140
Link Distance (ft)	691	691	219	219
Upstream Blk Time (%)	11	11	7	7
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 1962

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	18.8	0.2	19.1
Total Delay (hr)	0.6	1.8	1.1	0.5	35.9	1.9	41.9

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	2.1	66.2	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	1.0	55.1	8.7	2.2	4.1	0.1	3.0	0.4	1.0	1.0	1.3	0.4

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Delay (hr)	73.5
Total Delay (hr)	78.2

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	8.2	1.7	0.9	1.1	2.5	3.7	1.0	19.1

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.6	1.5	3.0	0.3	0.2	4.3	1.1	11.9

Total Zone Performance

Denied Delay (hr)	92.6
Total Delay (hr)	151.0

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	100	122	173	140	116	882	966
Average Queue (ft)	49	66	110	55	60	652	688
95th Queue (ft)	84	114	161	94	98	908	939
Link Distance (ft)		1080	1080	1066	1066	1036	1036
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	5	2					
Queuing Penalty (veh)	13	2					

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	200	1185	1198	199	272	304	174	395	125	223
Average Queue (ft)	37	1007	1019	109	131	148	86	169	64	104
95th Queue (ft)	144	1383	1391	196	238	237	160	289	112	191
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)		14	18							
Queuing Penalty (veh)		111	136							
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		60		5	2		0	10	3	11
Queuing Penalty (veh)		19		15	3		0	9	4	9

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	269	325	355	133	131	194	267	309	282	129
Average Queue (ft)	108	207	220	63	53	31	170	132	138	66
95th Queue (ft)	238	333	333	110	102	104	247	217	206	109
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)		1								
Queuing Penalty (veh)		4								

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	L	LT	T	TR
Maximum Queue (ft)	249	126	134	73	203	200	30	143	163	204
Average Queue (ft)	122	58	58	32	120	101	3	78	114	149
95th Queue (ft)	218	119	118	60	177	161	17	142	168	206
Link Distance (ft)	256	256	256		287	287		1256	1256	1256
Upstream Blk Time (%)	0									
Queuing Penalty (veh)	0									
Storage Bay Dist (ft)				300			115			
Storage Blk Time (%)								3		
Queuing Penalty (veh)								0		

Zone Summary

Zone wide Queuing Penalty: 325

4: Francis Ave #14 & Indian Trail Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SEL	SET	SER	All
Denied Del/Veh (s)	0.2	0.0	28.4	27.5	0.0	0.0	0.0	15.8
Total Del/Veh (s)	34.4	8.1	14.1	66.0	17.8	0.9	6.9	34.3

5: Alberta St & Francis Ave #14 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	2.0	1.0	0.4	38.5	40.6	36.8	4.0	0.2	0.3
Total Del/Veh (s)	67.5	37.3	33.2	152.8	125.9	127.4	291.0	298.5	281.2	47.4	45.4	24.5

5: Alberta St & Francis Ave #14 Performance by movement

Movement	All
Denied Del/Veh (s)	8.1
Total Del/Veh (s)	129.7

6: Ash St #4S & Francis Ave #14 Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1
Total Del/Veh (s)	23.8	22.8	32.4	6.1	33.0	24.5	26.9	18.8

7: Maple St #3N & Francis Ave #14 Performance by movement

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	All
Denied Del/Veh (s)	15.6	10.4	0.0	0.0	0.0	0.0	0.0	3.4
Total Del/Veh (s)	61.4	12.7	41.0	43.6	271.5	275.4	270.4	119.9

Total Zone Performance

Denied Del/Veh (s)	60.9
Total Del/Veh (s)	954.4

Intersection: 4: Francis Ave #14 & Indian Trail Road

Movement	EB	EB	EB	WB	WB	WB	SE	SE
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	100	173	158	1088	1106	280	174	222
Average Queue (ft)	81	73	59	363	769	243	98	112
95th Queue (ft)	114	150	110	995	1320	400	151	176
Link Distance (ft)		1080	1080	1066	1066		1036	1036
Upstream Blk Time (%)				0	2			
Queuing Penalty (veh)				2	25			
Storage Bay Dist (ft)	75					255		
Storage Blk Time (%)	25	1			1	16		
Queuing Penalty (veh)	57	3			8	50		

Intersection: 5: Alberta St & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	LTR	L	TR
Maximum Queue (ft)	199	380	405	200	1394	1398	175	1835	71	106
Average Queue (ft)	48	254	272	147	907	936	170	1476	32	52
95th Queue (ft)	151	345	371	231	1597	1600	200	2130	66	90
Link Distance (ft)		1169	1169		1382	1382		1801		497
Upstream Blk Time (%)					3	4		40		
Queuing Penalty (veh)					27	30		0		
Storage Bay Dist (ft)	175			175			150		100	
Storage Blk Time (%)		24		6	44		6	71		1
Queuing Penalty (veh)		10		45	65		28	157		0

Intersection: 6: Ash St #4S & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	TR	L	T	T	L	T	T	R
Maximum Queue (ft)	305	233	278	256	176	142	274	247	242	325
Average Queue (ft)	114	129	139	143	96	88	126	155	158	173
95th Queue (ft)	245	235	255	237	146	144	218	222	229	281
Link Distance (ft)		1577	1577	256	256	256	499	499	499	
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	300									400
Storage Blk Time (%)	2									
Queuing Penalty (veh)	4									

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	EB	EB	EB	WB	WB	WB	B471	B471	NB	NB	NB	NB
Directions Served	L	T	T	T	T	TR	T	T	L	LT	T	TR
Maximum Queue (ft)	287	197	262	286	405	394	305	305	140	1350	1325	1344
Average Queue (ft)	222	118	121	212	346	338	131	116	64	1112	1095	1089
95th Queue (ft)	315	181	211	386	411	413	302	287	155	1469	1454	1438
Link Distance (ft)	256	256	256		287	287	232	232		1256	1256	1256
Upstream Blk Time (%)	15		0	1	32	35	8	7		29	17	18
Queuing Penalty (veh)	48		0	0	250	274	60	52		0	0	0
Storage Bay Dist (ft)				300					115			
Storage Blk Time (%)				1	32				0	67		
Queuing Penalty (veh)				3	118				0	145		

Intersection: 7: Maple St #3N & Francis Ave #14

Movement	B476	B476	B472	B472
Directions Served	T	T	T	T
Maximum Queue (ft)	765	793	59	134
Average Queue (ft)	143	143	3	9
95th Queue (ft)	577	572	24	64
Link Distance (ft)	691	691	219	219
Upstream Blk Time (%)	5	5		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 1461

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PLANNING & DEVELOPMENT
808 W. SPOKANE FALLS BLVD.
SPOKANE, WASHINGTON 99201-3329
509.625.6300
FAX 509.625.6013
my.spokanecity.org

February 16, 2016

Jay Bonnett
J.R. Bonnett Engineering
803 E 3rd Avenue
Spokane, WA 99202

RE: Z1500084 Morningside Investment
Request to amend the Comprehensive Plan Land Use Plan Map

Dear Mr. Bonnett,

Agency comments received by Planning & Development as of February 10, 2016 are enclosed as **Attachment A** for your review. As you know, the City of Spokane's Streets Department has requested additional information in the form of a traffic impact study. It is our understanding that you are currently working on the scope of this study with your consultant, who you have indicated is Bill White of Morrison Maierle. In consultation with you and Mr. White, we have agreed upon March 15, 2016, as a target date for delivery of a draft of the traffic impact study. When a draft traffic impact study is forwarded to the city, the City's Streets Department will review it for completeness. Please remember that, per SMC 17G.020.060(E), "If required studies are not completed sufficiently in advance....to allow adequate staff and public review, consideration of those applications will be postponed until the next applicable amendment cycle."

Regarding the traffic impact study, the applicant was notified on December 11, 2015, via email that the City of Spokane Streets Department requests a traffic impact study. Additional preliminary information was emailed to you on December 23, 2015, from Inga Note, Senior Traffic Planning Engineer, which gave a preliminary indication of what the city anticipated the traffic impact study should contain, with the caveat that additional scoping information would be gathered from neighborhood comment and agency review. An additional agency request (email dated January 22, 2016) received from WSDOT has increased the scope to include selected intersections along Francis Avenue (aka SR 291). The City's Planning Department has been researching pipeline projects in the North Indian Trail area to identify the vehicle trips associated with those projects. A copy of the preliminary research is included in **Attachment B** with this letter.

In addition to agency comments, the City Planning & Development Department has received extensive public comment regarding traffic and other issues surrounding your proposal as well as Application Z1500087COMP, which also seeks to amend the land use plan map within the boundaries of the North Indian Trail neighborhood. We have provided you with copies of these emails and letters as they have been input into our log via email.

As we have discussed with you, the Growth Management Act (RCW 36.70A) and Chapter 17G.020 of the Spokane Municipal Code require the City to consider comprehensive plan amendments concurrently in order to evaluate their cumulative effect on the City's capital facilities program, neighborhood planning documents, adopted environmental policies, and other relevant implementation measures. Along those lines, Application Z1500087COMP also seeks to amend the land use plan map within the same North Indian Trail Neighborhood Council boundaries, and with reference to SMC 17G.020.030(G), both applications must be reviewed concurrently in order to evaluate their cumulative effects.

Comments from agencies and the public have highlighted the existing transportation infrastructure in this area. As we have discussed with you, the process of amending the City's comprehensive plan is legislative, and SMC 17G.020.030 establishes a list of review criteria/considerations that "shall be used, as appropriate, by the applicant in developing an amendment proposal, by planning staff in analyzing a proposal, and by the plan commission and city council in determining whether a criterion for approval has been met."

In preliminary review of your application materials, questions remain as to how your application will meet the decision criteria in SMC 17G.020.030, particularly, in relation to the issues of:

- ***Internal Consistency*** (SMC 17G.020.030(E)), which states: "The requirement for internal consistency pertains to the comprehensive plan as it relates to all of its supporting documents, such as development regulations, capital facilities program...and any neighborhood planning documents adopted after 2001";
- ***Cumulative Effect*** (SMC 17G.020.030(G)), which states: "All amendments must be considered concurrently in order to evaluate their cumulative effect on the comprehensive plan text and map, development regulations, capital facilities program, neighborhood planning documents, adopted environmental policies and other relevant implementation measures";
- ***Adequate Public Facilities*** (SMC 17G.020.030(I)), which states: "The amendment must not adversely affect the ability to provide the full range of urban public facilities and services (as described in CFU 2.1 and CFU 2.2) citywide at the planned level of service, or consume public resources otherwise needed to support comprehensive plan implementation strategies"; and,
- ***Financing*** (SMC 17G.020.030(C)), which states: "Infrastructure implications of approved comprehensive plan amendments must be reflected in relevant six-year capital improvement plan(s) approved in the same budget cycle".

Please be aware that these are essential questions that will need to be addressed as part of your traffic impact analyses and supplemental application materials. Failure to adequately or completely address these essential questions has the potential to lead to a determination of significance (DS) under SEPA. Please also be aware that a DS would result in the deferral of your application until the next applicable review cycle to allow adequate time for generating and processing the required environmental impact statement (EIS), as provided for in SMC 17G.020.030(H)(1).

It may be beneficial for you to schedule a meeting with City staff to further discuss the above questions, the implications to process and timeline, and the potential options moving forward. If you are interested in doing so, please contact Tirrell Black at (509) 625-6185, and she will coordinate a meeting with me and involved City staff.

Sincerely,

Lisa D. Key
Planning Director

Cc: Morningside Investments, LLC
Tirrell Black, Planning
Inga Note, Streets
James Richman, Legal
File

Attachments: Attachment A
Attachment B

PLANNING & DEVELOPMENT
808 W. SPOKANE FALLS BLVD.
SPOKANE, WASHINGTON 99201-3343
509.625.6300
FAX 509.625.6822
spokaneplanning.org

Attachment A

Comments from Agency Review Z1500084COMP (as of Feb 10 2016)

AGENCY	DATE	COMMENTER
City of Spokane, Engineering Services	Email received on 1.22.16	Inga Note
City of Spokane, Integrated Capital Programs	Email received on 2.8.16	Katherine Miller
City of Spokane, Fire Dept.	Email received on 2.5.16	Dave Kokot
City of Spokane, Business & Development Services, Current Planning	Email received on 2.5.16	Tami Palmquist
City of Spokane, Business & Development Services, Engineering	Email received on 2.8.16	Eldon Brown
Spokane County Public Works	Letter received on 2.1.16	Scott Engelhard
Washington State Department of Transportation	Email received on 1.22.16	Greg Figg
Spokane School District 81	Email received on 1.27.16	Gregory Forsyth
Spokane Transit Authority	Email received in 2.8.16	Karl Otterstrom
Spokane Regional Transportation Council	Email received on 2.9.16	Kevin Wallace

Black, Tirrell

From: Amanda Mansfield <amansfield@srtc.org>
Sent: Tuesday, February 09, 2016 11:55 AM
To: Black, Tirrell
Subject: City of Spokane 2015 Comprehensive Plan Amendments - SRTC Review Letters
Attachments: SRTC - City of Spokane 2015 Amendment Letter_ Z1500084.pdf; SRTC - City of Spokane 2015 Amendment Letter_ Z1500087.pdf; SRTC - City of Spokane 2015 Amendment Letter_ Z1500078 & Z1500085.pdf

Hello Tirrell,

See SRTC's review letters attached for the following amendments:

- Z1500078COMP
- Z1500084COMP
- Z1500085COMP
- Z1500087COMP

Please feel free to contact me with questions or comments.

Amanda Mansfield
Associate Transportation Planner
Spokane Regional Transportation Council (SRTC)
221 W. First Ave., Suite 310
Spokane, WA 99201
509-343-6384
amansfield@srtc.org

SRTC SPOKANE REGIONAL TRANSPORTATION COUNCIL
221 W. FIRST AVE., SUITE 310 • SPOKANE, WA 99201 • 509-343-6370 • WWW.SRTC.ORG

February 8, 2016

Tirrell Black, Assistant Planner
City of Spokane Planning and Development Services
808 W. Spokane Falls Blvd.
Spokane, WA 99201-3329

RE: City of Spokane 2015 Proposed Comprehensive Plan Amendment - Z1500084COMP

Dear Ms. Black:

Thank you for the opportunity to comment on this application for the City of Spokane's 2015 comprehensive plan amendment. SRTC serves as the Regional Transportation Planning Organization (RTPO) for Spokane County. As an RTPO, SRTC is mandated by the Revised Code of Washington (RCW)[i], including the Growth Management Act (GMA)[ii] to certify that the transportation elements of local comprehensive plans are consistent with SRTC's Regional Transportation Plan (RTP): Horizon 2040[iii]. SRTC staff has reviewed the application materials you provided for the following amendment:

1. Morningside Investments; Application/Permit Number: Z1500084COMP

Based on the information you provided for the location and scale of the proposed comprehensive plan changes, SRTC has determined that the proposed amendment is generally consistent with the relevant Guiding Principles and Policies of Horizon 2040 as well as with the relevant transportation planning requirements of the Revised Code of Washington (RCW), including the Growth Management Act (GMA).

Because of the scale of this proposal, SRTC finds that the City's requirement for the applicant to conduct a traffic study to determine the cumulative traffic impacts of this proposal is consistent with the 2008 Countywide Planning Policies (CWPP) for Spokane County.

The CWPP states the following: "The Growth Management Act (GMA) establishes a goal of encouraging development in urban areas where adequate public facilities and services exist or can efficiently be provided. Growth planning must ensure that needed facilities and services are adequate to serve new development without decreasing current service levels below locally established minimum standards."

SRTC recommends consideration of the following Policies from Guiding Principle 5: Safety and Security and Guiding Principle 6: Choice and Mobility from SRTC' Horizon 2040 as the proposed project moves forward:

Guiding Principle 5: Safety and Security

- Support transportation infrastructure and operational strategies for emergency response.

Guiding Principle 6: Choice and Mobility

- 6a. Strengthen connections by filling gaps within and between modes.
- 6b. Improve access to transit for all persons.
- 6c. Promote high performance transit service where regional activity centers with transit supportive development exist.
- 6d. Expand the pedestrian and bicycle networks while focusing on moving people between centers and linking with transit.
- 6f. Support transportation demand management strategies.

SRTC's level of service (LOS) analysis did not show a forecasted LOS failure for the regional mobility corridors.

For more information on SRTC's required comprehensive plan amendment review and certification process, please see: http://www.srtc.org/other_documents.html.

Please contact me if you need additional information about our review of this amendment proposal.

Sincerely,

Kevin Wallace
Executive Director

---

[i] http://apps.leg.wa.gov/rcw/default.aspx?cite=47.80.026
[ii] http://apps.leg.wa.gov/rcw/default.aspx?cite=36.70a.070
[iii] http://www.srtc.org/mtp_2040.html

Black, Tirrell

From: Johnson, Erik D.
Sent: Monday, February 08, 2016 4:18 PM
To: Black, Tirrell
Cc: Becker, Kris; Brown, Eldon; Saywers, John; Nilsson, Mike; Kells, Patty
Subject: Z1500084COMP Comments
Attachments: Z1500084COMP.pdf; Z1500084COMP.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Tirrell,

Attached you will find comments for Comp Plan Amendment Z1500084COMP

Thanks,

Erik Johnson | City of Spokane | Engineering Technician III | Planning & Development
509.625.6445 | *fax* 509.625.6124 | edjohnson@spokanecity.org | spokanecity.org

MEMORANDUM

CITY OF SPOKANE
PLANNING & DEVELOPMENT

DATE: **February 08, 2016**

TO: **Tirrell Black, Assistant Planner**

FROM: **Eldon Brown, P.E., Principal Engineer – Planning & Development**

File No: **Z1500084COMP**

SUBJECT: **Comprehensive Plan Amendment – Request a change in the land designation from R4-10 to partially R15-30 and R10-20 as well as changing the current RSF to RMP and RTF for 260 single family parcels.**

APPLICANT: **Morningside Investments, LLC**

Comp Plan Amendment Comments

1. The majority of these parcels have previously been connected individually to a private sewer system. This private system appears to have capacity to serve additional units however the individual lot connections have been sized to serve single family homes. These service connections will need to be further evaluated for capacity at the time of future development applications. It is likely that these service connections will need to be upsized to handle additional units.

   This private sewer system eventually ties into the City of Spokane's public sewer system in Barnes Road and Concord Lane. The City's public sewer system appears to have adequate capacity to serve this increased density but may also need to be evaluated with future development applications.

2. The majority of these parcels have previously been connected individually to a private water system. This private water system appears to have capacity to serve additional units however the individual lot connections are likely undersized to serve anything larger than single family homes. Water sizing requirements will be evaluated with future development applications and any unused individual lot connections will need to be abandoned and capped at the private main.

   The public water system that serves this area appears to have adequate capacity to serve this upsize in density but may also need to be evaluated with future development applications.

Phone (509) 625-6300

3. Compliance to SMC 17.060D Stormwater Facilities is required and will be reviewed at the time of development application(s).

4. After an evaluation of the existing streets it appears that on-street parking may be prohibited. (Maintain a 20-foot unobstructed traveled way for emergency access). Therefore an increase in density may require on-site parking.

cc: Developer Services File
Kris Becker, P.E., Manager, Planning & Development
John Saywers, P.E., Senior Engineer, Planning & Development
Mike Nilsson, P.E., Associate Engineer, Planning & Development
Patty Kells, Traffic Engineering Assistant, Planning & Development

Black, Tirrell

From: Weinand, Kathleen <KWeinand@spokanetransit.com>
Sent: Monday, February 08, 2016 3:59 PM
To: Freibott, Kevin; Black, Tirrell
Subject: RE: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment
Attachments: STAComments_COS_Z1500084COmpMornignside.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Please find the attached comments.

From: Freibott, Kevin [mailto:kfreibott@spokanecity.org]
Sent: Monday, January 25, 2016 2:01 PM
To: Black, Tirrell <tblack@spokanecity.org>; kmkearney@q.com; jatrent1@gmail.com; Allenton, Steven <sallenton@spokanecity.org>; Arnold, Dale <XXXdarnold@spokanecity.org>; Basinger, Mike <mbasinger@spokanevalley.org>; Becker, Kris <kbecker@spokanecity.org>; Brown, Eldon <ebrown@spokanecity.org>; Brown, Ken <kbrown@spokanecity.org>; Buller, Dan <dbuller@spokanecity.org>; Byrne, Ray <rbyrne@srhd.org>; Caputo, Dee <dee.caputo@commerce.wa.gov>; Casci, Erin <erincasci@hotmail.com>; Corley, Jacki <jacqueline.corley@spokanetribe.com>; Coster, Michael <mcoster@spokanecity.org>; Dalrymple, Dana <ddalrymple@spokanelibrary.org>; Divens, Karin <Karin.divens@dfw.wa.gov>; Duvall, Megan <mduvall@spokanecity.org>; Engelhard, Scott <SEngelhard@spokanecounty.org>; Environmental Review <SEPAUNIT@ECY.WA.GOV>; Erkel, Tim <tim.r.erkel@usace.army.mil>; Figg, Greg <FiggG@wsdot.wa.gov>; Gately, John <jgately@spokanepolice.org>; Halsey, John <jhalsey@spokanecity.org>; Hanson, Tonilee <sajbinfo@gmail.com>; Howell, Gordon <GHowell@spokanetransit.com>; Hughes, Rick <rhughes@spokanecity.org>; Hynes, Mike <MHynes@spokanetransit.com>; Johnson, Candy <CandyJ@spokaneschools.org>; Kaehler, Gretchen <gretchen.kaehler@DAHP.wa.gov>; Kay, Char <kayc@wsdot.wa.gov>; Kegley, Daniel <dkegley@spokanecity.org>; Kells, Patty <pkells@spokanecity.org>; Koch, Lori <lori.koch@amr.net>; Kokot, Dave <dkokot@spokanecity.org>; Madunich, Tony <tmadunich@spokanecity.org>; Mallahan, Jonathan <jmallahan@spokanecity.org>; McCann, Jacob <Jacob.mccann@dnr.wa.gov>; McClure, Jeff <Jmcclure@cheneysd.org>; Meyer, Eric <EMeyer@srhd.org>; Miller, Katherine E <kemiller@spokanecity.org>; Moore, David <david.moore@ecy.wa.gov>; Moore, Michael <michael.s.moore@williams.com>; Morris, Mike <mmorris@spokanecity.org>; Neff, Julie <jneff@spokanecity.org>; Neighborhood Services <Neigh.Svcs@SpokaneCity.org>; Nilsson, Mike <mnilsson@spokanecity.org>; Note, Inga <inote@spokanecity.org>; Nyberg, Gary <GNYBERG@spokanecounty.org>; Palmquist, Tami <tpalmquist@spokanecity.org>; Peacock, William <wpeacock@spokanecity.org>; Pederson, John <JPederson@spokanecounty.org>; Qureshi, Megan <mqureshi@spokanecity.org>; Ragaza-Bourassa, Anna <annarb@srtc.org>; Richman, James <jrichman@spokanecity.org>; Sakamoto, James <jsakamoto@spokanecity.org>; Sanders, Theresa <tsanders@spokanecity.org>; SEPA Center <sepacenter@dnr.wa.gov>; Sikes, Jeremy <jsik461@ecy.wa.gov>; Steele, David <dsteele@spokanecity.org>; Trautman, Heather <htrautman@spokanecity.org>; Wallace, Kevin <kwallace@srtc.org>; Weinand, Kathleen <KWeinand@spokanetransit.com>; Weingart, LuAnn <luann.weingart@avistacorp.com>; Wendle, Ned <ned.wendle@mead354.org>; Westby, April <awestby@spokanecleanair.org>; Windsor, Scott <swindsor@spokanecity.org>
Subject: RE: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment

Good afternoon. As you may remember from our emails in December, this year's round of proposed Comprehensive Plan Amendments are subject to a 60-day agency comment period. We felt this longer Agency Comment period would be useful given the complexity of some aspects of the proposals. As this has been an extra long Agency comment period, we wanted to remind all of you that the time to submit comments will end at **5:00 PM on February 8th**. If you

Spokane Transit

February 8, 2016

Tirrell Black
Assistant Planner
City of Spokane
808 W Spokane Falls Boulevard
Spokane WA, 99201

RE: REQUEST FOR COMMENTS FILE NO. Z1500084COMP, Morningside Investments LLC

Dear Ms. Black,

Thank you for the notice of the above referenced request for comment.

The proposed amendment of the land use plan map designation for the subject site from "R 4-10" to "R 10-20" and "R 15-30" will likely result in an increased demand for transit at this location. The closest stops to the subject site are located at Indian Trail Road and Shawnee Avenue and Indian Trail Road and Barnes Road. These stops are served with 30 minute service during the weekday but are not currently served on evenings and weekends. Residents that live in higher density development patterns that the proposed designation would allow are more likely to use transit and as such are more impacted than residents in single-family detached housing by the absence of fixed-route service during evening and weekends.

The STA Board of Directors has adopted the *STA Moving Forward Plan*, which proposes to provide service on nights and weekends at this location however the necessary funding has not been secured to implement the plan. An April 2015 ballot measure to fund the plan, including extending service hours in the Indian Trail area, was not approved by voters. The STA Board of Directors is currently in discussion regarding proposing another ballot measure to voters to fund the *STA Moving Forward Plan.* Some funding packages the Board is discussing would not include the addition of night and weekend service for the Indian Trail area.

The quantity of transit service that will be provided to the Indian Trail community within the horizon of the City's Comprehensive Plan will be dependent on demand and available resources. However, because of this area's location at the edge of the City and the topographic barriers that isolate the area it should be noted that areas more connected by a grid street network and more central in the City are easier and more affordable to serve with transit and as result will likely be better served by transit in the future.

Should this proposed land use plan designation change be adopted, STA requests that following mitigations be enforced at the time of building permit for subsequent development:

1. ADA compliant pedestrian connections for the most direct route possible between residential units and the closet bus stop be required.

328-RIDE
spokanetransit.com
TTY 456-4327

1230 W Boone Avenue
Spokane, Washington 99201-2686

509.325.6000
509.325.6036

2. The bus stops at Indian Trail and Shawnee Avenue and Indian Trail and Barnes Road be upgraded with ADA accessible "shelter-ready" concreate pads. This will allow STA to install a bus shelter as demand from new residential areas warrants.

Please let me know if you have any questions about these comments or requests. It is important to STA to continue to coordinate on changes to our respective plans. We value your efforts to include us in this process.

Sincerely,

Karl Otterstrom, AICP
Planning Director

Black, Tirrell

From: Miller, Katherine E
Sent: Monday, February 08, 2016 6:45 PM
To: Black, Tirrell
Subject: RE: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment

Tirrell,

Regarding this land use change to increase density. There is currently nothing in the 6-yr Program to alleviate the increase in traffic that this proposed change would result in. Due to the topography in the area, solutions to traffic congestion are limited. Typically challenging topography results in higher costs to address both transportation and utility issues. These costs should be clearly understood before approvals to increase density are moved forward to allow City Council to understand the financial impacts and any resulting impacts to currently planned transportation and utility projects.

Thank you,
Katherine

Katherine Miller, P.E.| City of Spokane | Director- Integrated Capital Management
509.625-6338 | *fax* 509.625.6822 | kemiller@spokanecity.org | spokanecity.org

---

From: Black, Tirrell
Sent: Monday, February 08, 2016 12:04 PM
To: Miller, Katherine E
Subject: FW: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment

Tirrell Black
Planning & Development Services
509-625-6185

From: Freibott, Kevin
Sent: Monday, January 25, 2016 2:01 PM
To: Black, Tirrell <tblack@spokanecity.org>; kmkearney@q.com; jatrent1@gmail.com; Allenton, Steven <sallenton@spokanecity.org>; Arnold, Dale <XXXdarnold@spokanecity.org>; Basinger, Mike <mbasinger@spokanevalley.org>; Becker, Kris <kbecker@spokanecity.org>; Brown, Eldon <ebrown@spokanecity.org>; Brown, Ken <kbrown@spokanecity.org>; Buller, Dan <dbuller@spokanecity.org>; Byrne, Ray <rbyrne@srhd.org>; Caputo, Dee <dee.caputo@commerce.wa.gov>; Casci, Erin <erincasci@hotmail.com>; Corley, Jacki <jacqueline.corley@spokanetribe.com>; Coster, Michael <mcoster@spokanecity.org>; Dalrymple, Dana <ddalrymple@spokanelibrary.org>; Divens, Karin <Karin.divens@dfw.wa.gov>; Duvall, Megan <mduvall@spokanecity.org>; Engelhard, Scott <SEngelhard@spokanecounty.org>; Environmental Review <SEPAUNIT@ECY.WA.GOV>; Erkel, Tim <tim.r.erkel@usace.army.mil>; Figg, Greg <FiggG@wsdot.wa.gov>; Gately, John <jgately@spokanepolice.org>; Halsey, John <jhalsey@spokanecity.org>; Hanson, Tonilee <sajbinfo@gmail.com>; Howell, Gordon <ghowell@spokanetransit.com>; Hughes, Rick <rhughes@spokanecity.org>; Hynes, Mike

SPOKANE COUNTY
PUBLIC WORKS DEPARTMENT
Division of Engineering and Roads
Transportation Engineering
1026 West Broadway Avenue
Spokane, WA 99260-0170

(509) 477-3600 Fax (509)477-7655
sengelhard@spokanecounty.org
gbaldwin@spokanecounty.org

Memo

Planner: Tirrell Black, Assistant Planner

From: Scott Engelhard, Spokane County Engineering Scott

File #: Z1500084COMP, Morningside Investments LLC

Date: February 1, 2016

RE: Proposed amendment of Land Use Plan Map from "R 4-10" (Residential 4 to 10 units per acre) to a portion to "R 10-20" and a portion to "R 15-30"; If approved with concurrent change to zoning map from RSF (Residential Single Family) zoning to RTF (Residential Two Family) and RMF (Residential Multi Family).

Please include these comments from Spokane County Engineering in the file for the above referenced application.

It is noted that in Section 14 of the SEPA Checklist submitted with this application that a Trip Distribution Letter will be prepared for a development proposal. Spokane County Engineering is requesting to be included in any additional traffic information that is submitted for agency review to determine if any County facilities will be affected.

end

Black, Tirrell

From: Palmquist, Tami
Sent: Friday, February 05, 2016 3:35 PM
To: Black, Tirrell
Subject: Comments for Morningside Comp Plan

Tirrell,
It is my opinion that the proposal that is included in the application for Morningside Comp Plan change would not meet the development standards outlined in 17C. 110 Residential Zones, specifically lot coverage and front yards. Also, per Section 17C.230.145 Development Standards for Residential Uses, in the RTF, RMF, RHD, FBC CA4 zones, no more than twenty percent of the land area between the front lot line and the front building line may be paved or used for vehicle areas. As shown the proposal would require a substantial modification from the original PUD which would be reviewed by the Hearing Examiner.

Tami Palmquist, AICP, CFM | Associate Planner | City of Spokane
509.625.6157 | *fax* 509.625.6013 | tpalmquist@spokanecity.org | spokanecity.org

Black, Tirrell

From: Freibott, Kevin
Sent: Friday, February 05, 2016 2:00 PM
To: Black, Tirrell
Subject: FW: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment

Please see below for fire comments on Morningside.

Kevin

Kevin Freibott | Assistant Planner | City of Spokane - Planning and Development Services
509.625-6184 | mailto:kfreibott@spokanecity.org | spokanecity.org | spokaneplanning.org

From: Kokot, Dave
Sent: Friday, February 05, 2016 1:59 PM
To: Freibott, Kevin <kfreibott@spokanecity.org>
Subject: RE: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment

The Fire Department has the following concerns about this proposal:

1. There are three access points into this development, so it appears that access would be compliant.
2. Traffic considerations need to be taken into account for response times and the ability to respond.
3. With the increased number of dwelling units, there needs to be consideration for providing that fire access can be met. This may involve "No Parking" signs or some other method to confirm that the minimum requirements for fire lanes are met.

Spokane FIRE DEPARTMENT
David F. Kokot, P.E. | City of Spokane | Fire Protection Engineer
509.625-7056 | *fax* 509.625.7006 | dkokot@spokanefire.org | spokanefire.org

From: Freibott, Kevin
Sent: Monday, January 25, 2016 2:01 PM
To: Black, Tirrell; kmkearney@q.com; jatrent1@gmail.com; Allenton, Steven; Arnold, Dale; Basinger, Mike; Becker, Kris; Brown, Eldon; Brown, Ken; Buller, Dan; Byrne, Ray; Caputo, Dee; Casci, Erin; Corley, Jacki; Coster, Michael; Dalrymple, Dana; Divens, Karin; Duvall, Megan; Engelhard, Scott; Environmental Review; Erkel, Tim; Figg, Greg; Gately, John; Halsey, John; Hanson, Tonilee; Howell, Gordon; Hughes, Rick; Hynes, Mike; Johnson, Candy; Kaehler, Gretchen; Kay, Char; Kegley, Daniel; Kells, Patty; Koch, Lori; Kokot, Dave; Madunich, Tony; Mallahan, Jonathan; McCann, Jacob; McClure, Jeff; Meyer, Eric; Miller, Katherine E; Moore, David; Moore, Michael; Morris, Mike; Neff, Julie; Neighborhood Services; Nilsson, Mike; Note, Inga; Nyberg, Gary; Palmquist, Tami; Peacock, William; Pederson, John; Qureshi, Megan; Ragaza-Bourassa, Anna; Richman, James; Sakamoto, James; Sanders, Theresa; SEPA Center; Sikes, Jeremy; Steele, David; Trautman, Heather; Wallace, Kevin; Weinand, Kathleen; Weingart, LuAnn; Wendle, Ned; Westby, April; Windsor,

Black, Tirrell

From: Gregory Forsyth <GregoryF@SpokaneSchools.org>
Sent: Wednesday, January 27, 2016 10:35 AM
To: Black, Tirrell
Subject: RE: FW: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment
Attachments: Northwest Capacity Elementary Information.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Hello -

Here are some rough numbers around the capacity of our Northwest elementary school sites, Woodridge, Indian Trail, and Balboa. It is difficult to predict the capacity of schools as programs change along with state guidelines. If you have any further questions please feel free to contact me. -greg-

Gregory J. Forsyth
Spokane Public Schools
Director, Capital Projects
509-354-5771 office
509-370-1665 cell
gregoryf@spokaneschools.org

>>> "Black, Tirrell" <tblack@spokanecity.org> 1/22/2016 1:52 PM >>>

Tirrell Black
Planning & Development Services
509-625-6185

-----Original Message-----
From: Gregory Forsyth [mailto:GregoryF@SpokaneSchools.org]
Sent: Wednesday, January 20, 2016 3:14 PM
To: Black, Tirrell <tblack@spokanecity.org>
Subject: Re: FW: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment

Hello -

I will work on getting those facts back to you by the end of the week. Will that work for you? -greg-

>>> "Black, Tirrell" <tblack@spokanecity.org> 1/20/2016 11:36 AM >>>
Mr. Forsyth,
We spoke on the phone (last month?) about the large North Indian Trail Comprehensive Plan Land Use Amendments that we are processing and the potential impacts to the elementary school in the N. Indian Trail neighborhood. We have two requests for amendments to the land use plan map within N. Indian Trail.

The documents that you received in December are attached again for your convenience and the webpage link: https://my.spokanecity.org/projects/comprehensive-plan-amendment-cycle-2015-2016/

Due to the complexity of these applications, we provided a lengthy agency comment period. The agency comment period runs to February 8, 2016.

In our phone conversation last month, you indicated that you were unlikely to submit comments. Since then, we have received a substantial number of public comments - even though we are not yet to the public comment phase. Much of the comment has indicated that Woodridge Elementary school is over capacity but after our phone conversation, it was my impression that this is not the case.

Factual information about the number of students in the area, and what the school district's growth projections are for the school would be very useful to have into the record at this point. Whatever adopted plan excerpt that you have would be great.

If you'd like more information, please feel free to contact me. If the public comment to date would be useful, please let me know and I can provide that as well.

Sincerely,

[cid:image002.jpg@01D0A82A.5C931420]

Tirrell Black, AICP

City of Spokane | Assistant Planner

509.625.6185 | fax 509.625.6013 | tblack@spokanecity.org<mailto:tblack@spokanecity.org> | spokanecity.org<http://www.spokanecity.org/>
[cid:image002.png@01CE560D.102DE590]<http://www.spokanecity.org/>
[cid:image003.png@01CE560D.102DE590] <http://facebook.com/cityspokane>
[cid:image004.png@01CE560D.102DE590] <http://twitter.com/spokanecity>

From: Bishop, Stephanie
Sent: Wednesday, December 09, 2015 5:00 PM
To: tldeno@peoplepc.com; jandmhernandez@comcast.net; melody.d.huston@gmail.com
Cc: Black, Tirrell <tblack@spokanecity.org>
Subject: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment

Dear Agency or Interested City Department Reviewer,

This is the second of four emails with "Request for Comment" and SEPA consultation on four Proposed Annual Amendment's to the City's Comprehensive Plan Land Use Plan Map.

For each, you will receive a copy of the Request for Comments and SEPA checklist attached. For more information including maps and application documents go to:
https://my.spokanecity.org/projects/comprehensive-plan-amendment-cycle-2015-2016/

Please feel free to contact me if you have any questions, Sincerely,

[cid:image002.jpg@01D0A82A.5C931420]

Tirrell Black

City of Spokane | Assistant Planner

509.625.6185 | fax 509.625.6013 | tblack@spokanecity.org<mailto:tblack@spokanecity.org> | spokanecity.org<http://www.spokanecity.org/>

Northwest Capacity Elementary Information

1-27-16

Woodridge Elementary School

- Current enrollment as of Nov 2015: 461
- Capacity of building as designed: 575 - 625
- Potential student growth: 114
- Demographers 2014 study projections for 2024: 429

Indian Trail Elementary School

- Current enrollment as of Nov 2015: 332
- Capacity of building as designed: 415 - 465
- Potential student growth: 83
- Demographers 2014 study projections for 2024: 299

Balboa Elementary School

- Current enrollment as of Nov 2015: 348
- Capacity of building as designed: 525 - 575
- Potential student growth: 177
- Demographers 2014 study projections for 2024: 347

Black, Tirrell

From: Figg, Greg <FiggG@wsdot.wa.gov>
Sent: Friday, January 22, 2016 1:03 PM
To: Note, Inga
Cc: Kay, Charlene; Black, Tirrell; Bjordahl, Mike
Subject: Indian Trail Traffic Study Scope

Follow Up Flag: Follow up
Flag Status: Flagged

Inga,

Thank you for the opportunity to comment on the scope of the traffic studies for the McCarroll East and Windhaven comprehensive plan amendments. Due to the sizable nature of these two projects and the anticipated trip distribution, SR-291 (Francis Ave) will bear a significant impact from much of this traffic. Consequently, WSDOT requests that the following intersections along SR 291 be added to the scope of this study:

- Francis and Indian Trails Road
- Francis and Alberta
- Francis and Ash
- Francis and Maple

Additionally, due to the queue lengths that many of these intersections experience in the peak hours the traffic counts performed need to track the arrivals in the queue rather than the discharge from these signalized intersections.
Please let me know if you should have any questions.
Best Regards,

Greg Figg
WSDOT Eastern Region
Development Services Manager
figgg@wsdot.wa.gov
Phone (509) 324-6199

Black, Tirrell

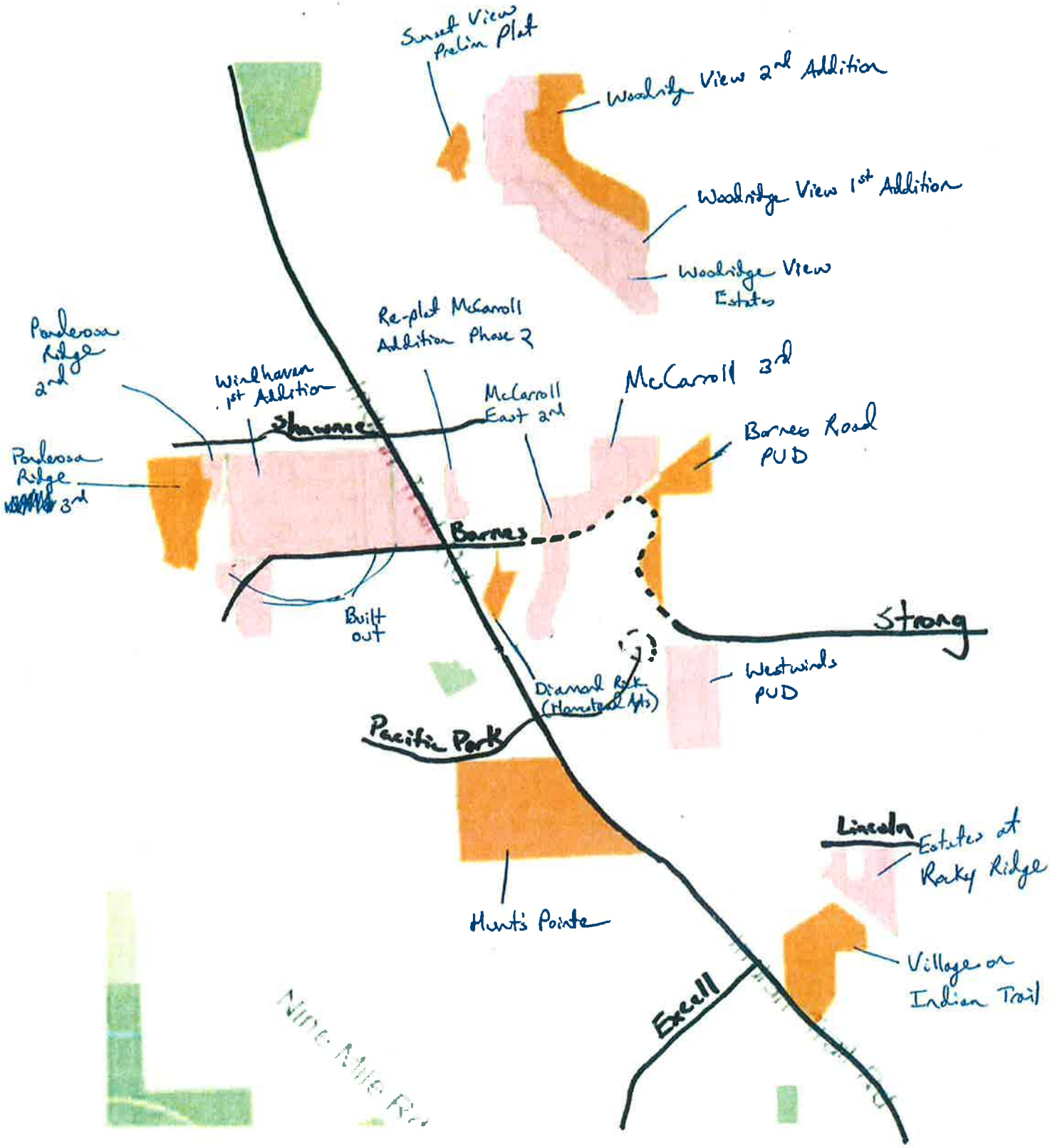
From: Note, Inga
Sent: Wednesday, December 23, 2015 1:55 PM
To: 'Jay Bonnett'
Cc: Black, Tirrell; Kells, Patty
Subject: Morningside - Indian Trail traffic study scope
Attachments: 1117_001.pdf; Indian Trail Development Summary for Comp PLan TIAs.xlsx

Jay,
This should get you going on the traffic impact study for the comprehensive plan amendment. We will want a public traffic meeting once the results are completed to have the engineer present the results to the neighborhood. Sometimes we do a traffic scoping meeting at the beginning, but I'm going to skip that because I want to allow your traffic engineer to get moving on the analysis. Instead I'm going to send a copy of this scope to the neighborhood council for distribution. If there are additional items they want to have studied, they can send me the request via email and I'll see if we should include it. So when you are discussing price, just be aware that there's the possibility of adding a little more to the scope.

- See the attached excel file and PDF for information on background projects. You'll notice that the Morningside single family plat is included since it's already approved. The analysis should only look at the difference between the current and proposed zoning.
- The Barnes Road extension should be built by 2017. So transfer all traffic counted on Strong Road over to Barnes and assume Strong becomes a cul-de-sac at the water tower. Barnes will likely see an increase in traffic as well due to the improved conditions. Apply a 3% per year growth factor to the new Barnes Road connection to Five-Mile. No other background growth rate is needed.
- Intersections to analyze. I don't have any recent turning counts for these. But I did include some historic tube counts in the attached excel file.
    - Indian Trail / Barnes (AM and PM) – the phasing may have changed recently to protective-permissive lefts
    - Indian Trail / Strong-Pacific Park Drive (AM and PM)
    - Indian Trail / Francis (AM and PM)
- Scenarios
    - Existing
    - Future No-Build (built-out background projects)
    - Future Build with Morningside rezone traffic
    - Future Build + Morningside + Crapo/McCarroll rezone traffic
    - Assume 6 years out for the build out year?
- Indian Trail Road needs to be analyzed with a recommendation for when the first phase of widening from Kathleen to Pacific Park should occur. We probably need an estimate of the number of new trips that can be added to the area before the widening is needed.

Let me know if you have any questions. I will be out of the office Dec 24th through Jan 3rd.

Inga Note, P.E. PTOE | City of Spokane | Senior Traffic Planning Engineer
509.232.8813 | *fax* 509.232.8831 | inote@spokanecity.org | spokanecity.org


Sunset View Prelim Plat
Woodridge View 2nd Addition
Woodridge View 1st Addition
Woodridge View Estates
Re-plat McCarroll Addition Phase 2
Ponderosa Ridge 2nd
Windhaven 1st Addition
McCarroll East 2nd
McCarroll 3rd
Barnes Road PUD
Ponderosa Ridge 3rd
Barnes
Built out
Strong
Westwinds PUD
Diamond Rock (Hamstead Mtls)
Pacific Park
Lincoln
Estates at Rocky Ridge
Hunt's Pointe
Village on Indian Trail
Excell

Developable Land in Indian Trail Neighborhood

Project Name	Parcel #	Owner/Developer	Plat Status	Build Out Status (per 2014 photo)	Size (acre)	Zoning	# Lots	# Apts
Village on Indian Trail	multiple	Excelsior Youth Center	Prelim Plat	Not started	22	R4-10	81	
Hunt's Point	multiple	Douglass	Prelim Plat	Not started		R4-10, R10-20	214	
Windhaven First Addition	multiple	MorningSide Investme	Final Plat	Not started		R4-10	288	
Diamond Rock (Homestead) Apartments	26221.0902	Indian Trail LLC	BSP approved	Under construction	4.5	O-35		96
Barnes Road PUD	multiple	Barnes Road, LLC	Prelim Plat	Not started	14	R4-10	25	
Sunset View Prelim Short Plat	26151.0712	Dimov	Prelim Plat	Not started	4.2	R4-10	8	
Woodridge View 2nd Addition	26155.001	MSK, LLC	Prelim Plat	Not started	88	R4-10	21	
Estates at Rocky Ridge - off Lincoln Rd	26262.3301	D&J Rocky Ridge LLC	Final	Not built out		RSF	44	
Westwinds PUD - off Strong Rd - to Lowell	26262.3028	R&C Brown	Final	Not built out		RSF	37	
McCarroll's East 2nd Addition			Final	Almost built out		RSF	37	
Replat McCarroll's Addition Phase 2			Final	Not started	2.69	RSF	18	
McCarroll's East 3rd Add			Final	Not built out		RSF	48	
Ponderosa Ridge 2nd & 3rd Add			Prelim Plat	Not built out		RSF	155	

Black, Tirrell

From: Note, Inga
Sent: Monday, December 14, 2015 9:31 AM
To: 'Jay Bonnett'
Cc: Black, Tirrell
Subject: RE: Z1500084COMP Morningside Investment Comprehensive Plan Amendment

Jay,
We do not give credits for the cost of preparing the TIA.
Thanks,
Inga

From: Black, Tirrell
Sent: Monday, December 14, 2015 9:21 AM
To: Note, Inga
Subject: FW: Z1500084COMP Morningside Investment Comprehensive Plan Amendment

Tirrell Black
Planning & Development Services
509-625-6185

From: Jay Bonnett [mailto:jbonnett@jrbonnett.com]
Sent: Monday, December 14, 2015 9:20 AM
To: Black, Tirrell <tblack@spokanecity.org>
Cc: Meuler, Louis <lmeuler@spokanecity.org>; Richman, James <jrichman@spokanecity.org>
Subject: RE: Z1500084COMP Morningside Investment Comprehensive Plan Amendment

Thanks Tirrell,

Can you confirm that the costs associated with preparing the TIA will be credited back to the owner when the traffic impact fees are assessed?

Thanks.

Jay Bonnett, P.E., Principal
J.R. Bonnett Engineering, PLLC
803 E. 3rd Avenue
Spokane, WA 99202
509-534-3929

From: Black, Tirrell [mailto:tblack@spokanecity.org]
Sent: Friday, December 11, 2015 12:20 PM
To: Jay Bonnett <jbonnett@jrbonnett.com>
Cc: Meuler, Louis <lmeuler@spokanecity.org>; Richman, James <jrichman@spokanecity.org>
Subject: FW: Z1500084COMP Morningside Investment Comprehensive Plan Amendment

Mr. Bonnett,

This request was received by Planning Department yesterday regarding the Morningside Comprehensive Plan Amendment. Additional agency comments are anticipated, but you will be forwarded agency comments as they are received.

Please include me (by cc) when you discuss the Traffic Impact Analysis with Inga Note.
Sincerely,

Tirrell Black
Planning & Development Services
509-625-6185

From: Note, Inga
Sent: Thursday, December 10, 2015 11:32 AM
To: Black, Tirrell <tblack@spokanecity.org>
Subject: RE: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment

Tirrell,
The Streets Department requests a traffic impact analysis of the proposed zoning change. It should include a public meeting with the neighborhood. The applicant should work with the Streets Department to determine the scope of the analysis.

Thanks,

Inga Note, P.E. PTOE | City of Spokane | Senior Traffic Planning Engineer
509.232.8813 | *fax* 509.232.8831 | inote@spokanecity.org | spokanecity.org

---

From: Bishop, Stephanie
Sent: Wednesday, December 09, 2015 4:50 PM
To: kmkearney@q.com; jatrent1@gmail.com; Allenton, Steven; Arnold, Dale; Basinger, Mike; Becker, Kris; Brown, Eldon; Brown, Ken; Buller, Dan; Byrne, Ray; Caputo, Dee; Casci, Erin; Corley, Jacki; Coster, Michael; Dalrymple, Dana; Divens, Karin; Duvall, Megan; Engelhard, Scott; Environmental Review; Erkel, Tim; Figg, Greg; Gately, John; Halsey, John; Hanson, Tonilee; Howell, Gordon; Hughes, Rick; Hynes, Mike; Johnson, Candy; Kaehler, Gretchen; Kay, Char; Kegley, Daniel; Kells, Patty; Koch, Lori; Kokot, Dave; Madunich, Tony; Mallahan, Jonathan; McCann, Jacob; McClure, Jeff; Meyer, Eric; Miller, Katherine E; Moore, David; Moore, Michael; Morris, Mike; Neff, Julie; Neighborhood Services; Nilsson, Mike; Note, Inga; Nyberg, Gary; Palmquist, Tami; Peacock, William; Pederson, John; Qureshi, Megan; Ragaza-Bourassa, Anna; Richman, James; Sakamoto, James; Sanders, Theresa; SEPA Center; Sikes, Jeremy; Steele, David; Trautman, Heather; Wallace, Kevin; Weinand, Kathleen; Weingart, LuAnn; Wendle, Ned; Westby, April; Windsor, Scott
Cc: Black, Tirrell; Freibott, Kevin
Subject: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment

Dear Agency or Interested City Department Reviewer,

This is the second of four emails with "Request for Comment" and SEPA consultation on four Proposed Annual Amendment's to the City's Comprehensive Plan Land Use Plan Map.

For each, you will receive a copy of the Request for Comments and SEPA checklist attached. For more information including maps and application documents go to:
https://my.spokanecity.org/projects/comprehensive-plan-amendment-cycle-2015-2016/

Please feel free to contact me if you have any questions,
Sincerely,

Tirrell Black

City of Spokane | Assistant Planner

509.625.6185 | *fax* 509.625.6013 | tblack@spokanecity.org | spokanecity.org

Black, Tirrell

From: Bishop, Stephanie
Sent: Wednesday, December 09, 2015 5:00 PM
To: tldeno@peoplepc.com; jandmhernandez@comcast.net; melody.d.huston@gmail.com
Cc: Black, Tirrell
Subject: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment
Attachments: City_Spokane_Z1500084COMP_Morningside_Investments_Request_Agency_Comments(2).pdf; Z1500084COMP_SEPA_Checklist_Morningside_Invest.pdf

Dear Agency or Interested City Department Reviewer,

This is the second of four emails with "Request for Comment" and SEPA consultation on four Proposed Annual Amendment's to the City's Comprehensive Plan Land Use Plan Map.

For each, you will receive a copy of the Request for Comments and SEPA checklist attached. For more information including maps and application documents go to:
https://my.spokanecity.org/projects/comprehensive-plan-amendment-cycle-2015-2016/

Please feel free to contact me if you have any questions,
Sincerely,

Tirrell Black
City of Spokane | Assistant Planner
509.625.6185 | *fax* 509.625.6013 | tblack@spokanecity.org | spokanecity.org

CITY OF SPOKANE
PLANNING & DEVELOPMENT
808 W. SPOKANE FALLS BLVD.
SPOKANE, WASHINGTON 99201-3329
509.625.6300
FAX 509.625.6013
WWW.SPOKANEPLANNING.ORG
WWW.BUILDINGSPOKANE.ORG

REQUEST FOR COMMENTS
Agency and Interested City Department Review
FILE NO. Z1500084COMP, Morningside Investments LLC
Comprehensive Plan Land Use Map Amendment Proposal

DATE: December 9, 2015

TO: Interested Parties, City Departments
And Agencies with Jurisdiction.
(Distribution list on last page)

FROM: Tirrell Black, Assistant Planner
808 West Spokane Falls Boulevard
Spokane, WA 99201 or call (509) 625-6300 or 625-6815; email: tblack@spokanecity.org

SUBJECT: **Proposed amendment of Land Use Plan Map from "R 4-10" (Residential 4 to 10 units per acre) to a portion to "R 10-20" and a portion to "R 15-30"; If approved with concurrent change to zoning map from RSF (Residential Single Family) zoning to RTF (Residential Two Family) and RMF (Residential Multi Family).**

APPLICANT/ OWNER: **Morningside Investments LLC**

AGENT: **Mr. Jay Bonnett**
J.R. Bonnett Engineering
803 E. 3rd Avenue, Spokane WA 99202
509-534-3929; jbonnett1@jrbonnett.com

LOCATION: **This proposal is located north of W. Barnes Road and is generally bounded by W. Youngstown Lane, N. Concord Lane, W Jamestown Lane, and N Camden Lane.**

The location may also be described as: All parcels and tracts within the Windhaven First Addition PUD, except lots 1-8 Block 4, lots 1-13 Block 5, lots 1-5 Block 6. The area is comprised of 260 platted lots on approximately 45.5 acres. Map is attached.

Located within SW ¼ 15-26-42; SE ¼ 16-26-42; NE ¼ 21-26-42: NW ¼ 22-26-42

REPORT NEEDED BY: 5 P.M. February 8, 2016. If additional information is required in order for your department or agency to comment on this proposal, please notify the Planning Services Department as soon as possible so that the application processing can be suspended while the necessary information is being prepared. Under the procedures of SMC 17G.060, this referral to affected departments and agencies is for the following:

1) The determination of a complete application. If there are materials that the reviewing departments and agencies need to comment on this proposal, notice of such must be provided to the applicant;
2) Provides notice of application;
3) Concurrency Testing, **please note one of the following:**
   a) ( ) This application is subject to concurrency and agency is required to notify this department that applicant meets/fails currency; OR
   b) (X) This application is exempt from concurrency testing, but will use capacity of existing facilities.

The lack of comment including concurrency by any referral agency will be considered acceptance of this application as technically complete and meeting concurrency requirements.

Under the revised procedures of SMC 17G.060, this referral to affected Departments and Agencies is to provide notice of a pending application. **THIS WILL BE THE LAST NOTICE PROVIDED TO REFERRAL DEPARTMENTS AND**

* - The lack of comment including concurrency/capacity by any referral agency will be considered acceptance of this application as technically complete and meeting concurrency/capacity requirements.

** - Forward your comments to Patty Kells, Developer Services at **least 2 working days before the "Report needed by" date shown on** the front page.

DISTRIBUTION LIST FOR COMMENTS

FILE No.: Z1500084COMP (Comprehensive Plan Land Use Amendment Proposal)

Hard Copies

City Departments

- Engineering Services, Attn: Gary Nelson* **
- Engineering Services, Attn: Patty Kells *
- Construction Management, Attn: Ken Brown* **
- Capital Programs, Attn: Mike Taylor* **
- Solid Waste, Attn: Scott Windsor*
- Building Department, Attn: John Halsey

County Departments

- SRCAA, Attn: Chuck Studer
- Spokane Regional Health District, Attn: Eric Meyer

Washington State Agencies

- Department of Fish & Wildlife, Attn: Karin Divens - Habitat Program

Other Agencies

- U.S. Postal Service, Attn: Postmaster
- Avista Utilities, Attn: Lu Ann Weingart
- District 81, Attn: Facilities Planning*
- Spokane Tribe of Indians, Attn: Randy Abrahamson

  (SW ¼ 15-26-42; SE ¼ 16-26-42; NE ¼ 21-26-42: NW ¼ 22-26-42, see map follows)

E-mail Copies

City Departments

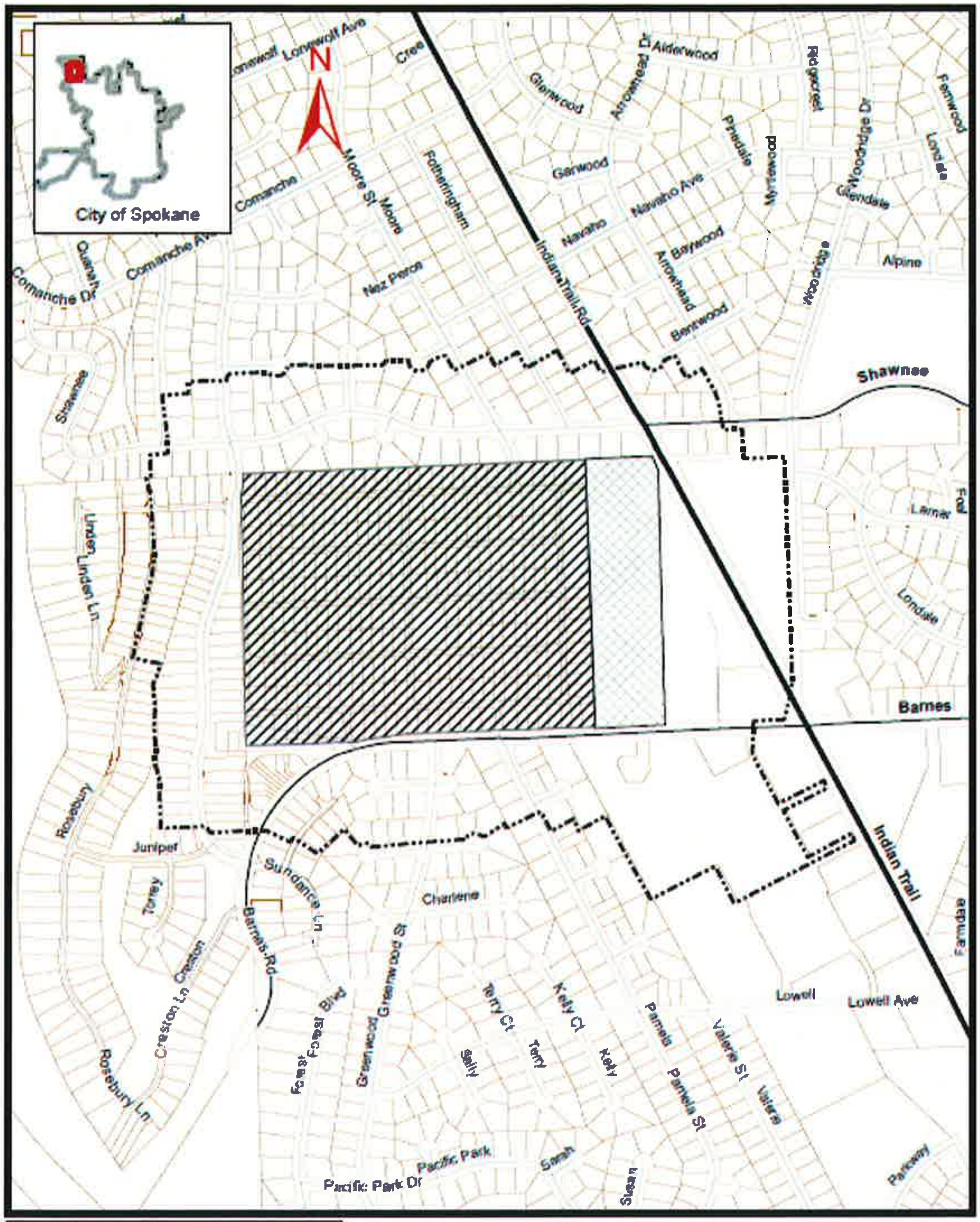
- Fire Dept., Attn: Dave Kokot, P.E.*
- Park Dept, Attn: Tony Madunich*
- City Attorney, Attn: James Richman
- Asset Management, Attn: Dave Steele
- Police Department, Attn: Lt. Rex Olson*
- Library Services, Attn: Dana Dalrympie*
- Neighborhood Services, Attn: Jonathan Mallahan & ONS Team
- Capital Programs, Attn:Steven Allenton
- Planning & Development Services, Attn: Julie Neff
- Historic Preservation, Attn: Jennifer Haegele

County Departments

- Spokane County Public Works, Attn: Scott Engelhard
- Spokane County Planning Department, Attn: John Pederson

Washington State Agencies

- Department of Natural Resources, Attn: Jacob McCann
- Department of Commerce, Attn: Dee Caputo
- Department of Archaeology & Historic Preservation, Attn: Gretchen Kaehler
- Department of Ecology, Attn: Environmental Review Section
- Department of Ecology, Eastern Region, Terri Costello
- Department of Ecology, Eastern Region, Attn: Michael Maher, Shoreline Permit Reviewer



Legend
Parcels
Notification district
Project Site
Adjacent Ownership

APPLICANT: Morningside Investments, LLC

PROPOSAL: Proposed Comprehensive Land designation from R4-10 to partially R15-30 and R10-20; and change zoning from RSF to RMF and RTF

Prepared by: WTC
Date prepared: 11/06/15
QC'd by:
Date QC'd:

SW 1/4 15-26-42; SE 1/4 16-26-42; NE 1/4 21-26-42; NW 1/4 22-26-42

Black, Tirrell

From: Freibott, Kevin
Sent: Monday, January 25, 2016 2:01 PM
To: Black, Tirrell; kmkearney@q.com; jatrent1@gmail.com; Allenton, Steven; Arnold, Dale; Basinger, Mike; Becker, Kris; Brown, Eldon; Brown, Ken; Buller, Dan; Byrne, Ray; Caputo, Dee; Casci, Erin; Corley, Jacki; Coster, Michael; Dalrymple, Dana; Divens, Karin; Duvall, Megan; Engelhard, Scott; Environmental Review; Erkel, Tim; Figg, Greg; Gately, John; Halsey, John; Hanson, Tonilee; Howell, Gordon; Hughes, Rick; Hynes, Mike; Johnson, Candy; Kaehler, Gretchen; Kay, Char; Kegley, Daniel; Kells, Patty; Koch, Lori; Kokot, Dave; Madunich, Tony; Mallahan, Jonathan; McCann, Jacob; McClure, Jeff; Meyer, Eric; Miller, Katherine E; Moore, David; Moore, Michael; Morris, Mike; Neff, Julie; Neighborhood Services; Nilsson, Mike; Note, Inga; Nyberg, Gary; Palmquist, Tami; Peacock, William; Pederson, John; Qureshi, Megan; Ragaza-Bourassa, Anna; Richman, James; Sakamoto, James; Sanders, Theresa; SEPA Center; Sikes, Jeremy; Steele, David; Trautman, Heather; Wallace, Kevin; Weinand, Kathleen; Weingart, LuAnn; Wendle, Ned; Westby, April; Windsor, Scott
Subject: RE: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment
Attachments: City_Spokane_Z1500084COMP_Morningside_Investments_Request_Agency_Comment.... pdf; Z1500084COMP_SEPA_Checklist_Morningside_Invest.pdf

Good afternoon. As you may remember from our emails in December, this year's round of proposed Comprehensive Plan Amendments are subject to a 60-day agency comment period. We felt this longer Agency Comment period would be useful given the complexity of some aspects of the proposals. As this has been an extra long Agency comment period, we wanted to remind all of you that the time to submit comments will end at **5:00 PM on February 8th**. If you plan to submit comments but have not yet done so, please submit your comments before that time to either Tirrell or me.

This will be one of four emails you will be receiving, one for each of the four proposals. As always, if you have any questions please feel free to contact Tirrell or me. Thank you and have a good day.

Kevin Freibott

Kevin Freibott | Assistant Planner | City of Spokane - Planning and Development Services
509.625-6184 | mailto:kfreibott@spokanecity.org | spokanecity.org | spokaneplanning.org

From: Bishop, Stephanie
Sent: Wednesday, December 09, 2015 4:50 PM
To: kmkearney@q.com; jatrent1@gmail.com; Allenton, Steven <sallenton@spokanecity.org>; Arnold, Dale <darnold@spokanecity.org>; Basinger, Mike <mbasinger@spokanevalley.org>; Becker, Kris <kbecker@spokanecity.org>; Brown, Eldon <ebrown@spokanecity.org>; Brown, Ken <kbrown@spokanecity.org>; Buller, Dan <dbuller@spokanecity.org>; Byrne, Ray <rbyrne@srhd.org>; Caputo, Dee <dee.caputo@commerce.wa.gov>; Casci, Erin <erincasci@hotmail.com>; Corley, Jacki <jacqueline.corley@spokanetribe.com>; Coster, Michael <mcoster@spokanecity.org>; Dalrymple, Dana <ddalrymple@spokanelibrary.org>; Divens, Karin

<Karin.divens@dfw.wa.gov>; Duvall, Megan <mduvall@spokanecity.org>; Engelhard, Scott <SEngelhard@spokanecounty.org>; Environmental Review <SEPAUNIT@ECY.WA.GOV>; Erkel, Tim <tim.r.erkel@usace.army.mil>; Figg, Greg <FiggG@wsdot.wa.gov>; Gately, John <jgately@spokanepolice.org>; Halsey, John <jhalsey@spokanecity.org>; Hanson, Tonilee <sajbinfo@gmail.com>; Howell, Gordon <ghowell@spokanetransit.com>; Hughes, Rick <rhughes@spokanecity.org>; Hynes, Mike <mhynes@spokanetransit.com>; Johnson, Candy <CandyJ@spokaneschools.org>; Kaehler, Gretchen <gretchen.kaehler@DAHP.wa.gov>; Kay, Char <kayc@wsdot.wa.gov>; Kegley, Daniel <dkegley@spokanecity.org>; Kells, Patty <pkells@spokanecity.org>; Koch, Lori <lori.koch@amr.net>; Kokot, Dave <dkokot@spokanecity.org>; Madunich, Tony <tmadunich@spokanecity.org>; Mallahan, Jonathan <jmallahan@spokanecity.org>; McCann, Jacob <Jacob.mccann@dnr.wa.gov>; McClure, Jeff <Jmcclure@cheneysd.org>; Meyer, Eric <EMeyer@srhd.org>; Miller, Katherine E <kemiller@spokanecity.org>; Moore, David <david.moore@ecy.wa.gov>; Moore, Michael <michael.s.moore@williams.com>; Morris, Mike <mmorris@spokanecity.org>; Neff, Julie <jneff@spokanecity.org>; Neighborhood Services <Neigh.Svcs@SpokaneCity.org>; Nilsson, Mike <mnilsson@spokanecity.org>; Note, Inga <inote@spokanecity.org>; Nyberg, Gary <GNYBERG@spokanecounty.org>; Palmquist, Tami <tpalmquist@spokanecity.org>; Peacock, William <wpeacock@spokanecity.org>; Pederson, John <JPederson@spokanecounty.org>; Qureshi, Megan <mqureshi@spokanecity.org>; Ragaza-Bourassa, Anna <annarb@srtc.org>; Richman, James <jrichman@spokanecity.org>; Sakamoto, James <jsakamoto@spokanecity.org>; Sanders, Theresa <tsanders@spokanecity.org>; SEPA Center <sepacenter@dnr.wa.gov>; Sikes, Jeremy <jsik461@ecy.wa.gov>; Steele, David <dsteele@spokanecity.org>; Trautman, Heather <htrautman@spokanecity.org>; Wallace, Kevin <kwallace@srtc.org>; Weinand, Kathleen <kweinand@spokanetransit.com>; Weingart, LuAnn <luann.weingart@avistacorp.com>; Wendle, Ned <ned.wendle@mead354.org>; Westby, April <awestby@spokanecleanair.org>; Windsor, Scott <swindsor@spokanecity.org>
Cc: Black, Tirrell <tblack@spokanecity.org>; Freibott, Kevin <kfreibott@spokanecity.org>
Subject: City of Spokane Z1500084COMP #2 of 4 Comprehensive Plan Amendment

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https://my.spokanecity.org/projects/comprehensive-plan-amendment-cycle-2015-2016/

Please feel free to contact me if you have any questions,
Sincerely,

SPOKANE
Tirrell Black
City of Spokane | Assistant Planner
509.625.6185 | *fax* 509.625.6013 | tblack@spokanecity.org | spokanecity.org
FIND US LIKE US FOLLOW US

ATTACHMENT B - Preliminary and Final Plats - Indian Trail Vicinity

DATE: 2/15/2016

Prepared for the North Indian Trail 2015/2016 Comp Plan Amendment Applications - Includes development that would be expected to contribute to traffic and transportation capacity on Indian Trail and Francis.

Please note that this table represents a summary of available information and is neither exhaustive nor representative of all approvals, applications, or requirements concerning the listed projects. Refer to project documentation for more information.

FINAL PLAT?	Project Name	Plat Status	Prelim Plat	Prelim Plat Date	Final Plat	Final Plat Date	Buildout Status	Size (GIS)	Zoning	Single-Family		Two-Family[1]		Multi-Family	
										SF Units In Plat	SF Units Unbuilt	TF Units in Plat	TF Units Unbuilt	MF Units in Plat	MF Units Unbuilt
N	Hunt's Pointe	Prelim Plat	Z0800063-PP	10/14/2009	n/a	-	No Final Plat	52.56	RSF, RTF	183	183	48	48		
Y	Windhaven First Addition	Final Plat	Z9700051-PP/PUD	12/8/2003	Z0500112-FP/PUD	9/27/2006	Not started	49.48	RSF, RTF	286	286				
Y	Diamond Rock (Homestead) Apartments (AKA Indian Trail BSP)	BSP approved	Z0800004-BSP (Binding Site Plan, Not Plat)	4/23/2009	Building Permits: B1501541 B1501543 B1501544	-	Under Construction (No Further Permits)	4.32	O-35	0	0			96	96
Y	Estates at Rocky Ridge - off Lincoln Rd	Final Plat	Z0500089-PP/PUD	5/2/2006	Z0700037-FP/PUD	12/3/2007	Under Construction	13.17	RSF	42	15				
Y	Westwinds PUD - off Strong Rd - to Lowell	Final Plat	Z0500010-PP/PUD	6/8/2005	Z0600046-FP/PUD	2/22/2008	Under construction	19.96	RSF	36	19				
Y	Replat McCarroll's Addition Phase 2	Final Plat	Z1300061-PPLT	1/21/2014	Z1500038-FPLT	7/15/2015	Not Started	2.69	RSF	13	13				
Y	McCarroll's East 3rd Add	Final Plat	Z9400073-PP/ZC	11/19/1994	Z0500081-FP	8/24/2006	Under Construction	19.18	RSF	44	10				
Y	McCarroll's East 4th Add	Final Plat (Proposed)	Z9400073-PP/ZC	11/19/1994	Z1500028-FPLT	In Process	FPLT Application in Process	8.58	RSF	15	15				
N	McCarroll East[3]	Prelim Plat	Z9400073-PP/ZC	11/19/1994	Various (See Items Above)	-	Various Final Plats Listed Separately	118.2	RSF, RTF	133	7	28	28		
Y	Ponderosa Ridge 3rd Addition	Final Plat	Z0000045-PP/PUD Z1000065-PPLT	7/20/2000 4/20/2011	Z1200004-FPLT	7/11/2012	Under Construction	9.94	RSF	43	12				
Y	Ponderosa Ridge 4th Addition	Final Plat (Proposed)	Z0000045-PP/PUD Z1000065-PPLT	7/20/2000 4/20/2011	Z1600082-FPLT	In Process	FPLT Application in Process	18.95	RSF	25	25				
Y	Woodridge View 1st Addition	Long Plat	Z0100033-PP	7/20/2001	Z0600060-FP	11/16/2006	Under Construction	24.72	RSF	40	7				

Notes:

[1] For every two-family lot approved there are assumed to be two units; each duplex = two dwelling units.

[2] A Binding Site Plan was approved for this parcel. However, the BSP expired and the current project under construction is not being constructed as part of the BSP, rather as a new project outside the BSP. As no change in use or division of land was necessary, only building permits were required prior to construction.

[3] The original McCarroll East preliminary plat approval included 257 single-family lots, 30 duplex lots, and 11 larger undivided parcels. Only those lots allowed prior to additional traffic analysis, AKA "Phase I" (per HE decision Z9400073PP/ZC/R) are listed herein. The "Unbuilt" category in this row only includes lots that were not already included in final plats in other rows on this table.

	Single-Family		Two-Family		Multi-Family	
	SF Units In Plat	SF Units Unbuilt	TF Units in Plat	TF Units Unbuilt	MF Units in Plat	MF Units Unbuilt
Total Units in Final Plats	**544**	**402**	**0**	**0**	**96**	**96**
Total Units in Preliminary Plats, Not Yet Finalized	**316**	**190**	**76**	**76**	**0**	**0**
Total Units in Final Plats not including the current applications for Comprehensive Plan Amendments	258	116	0	0	96	96
Total Units in Preliminary Pats not including the current applications for Comprehensive Plan Amendments	183	183	48	48	0	0

Return to Table of Contents

Capital Projects Office
2815 East Garland Avenue
Spokane, WA 99207-5889

phone (509) 354-5775
fax (509) 489-1036
www.spokaneschools.org

Spokane Public Schools
excellence for everyone

May 31, 2016

Dear Ms. Black:

This letter is to address elementary school capacity questions on the Northwest side of the Spokane Public Schools district. The schools that we assessed are Balboa, Indian Trail, Woodridge and Westview. Assessing capacity of a school is not an exact science. There is a lot of assumptions. One of the main assumption is that students come in a neat package, but we all know that they don't. I can give you a range at each school. The other concern is that this is a snap shot in time. Listed below is a current range of capacities:

School	Current Enrollment	Comfortable Growth Capacity
Balboa	324	81
Indian Trail	309	73
Woodridge	457	99
Westview	448	81

Sincerely,

Gregory Forsyth
Capital Projects and Planning
Spokane Public Schools
509-354-5775
gregoryf@spokanepublicschools.org

Return to Table of Contents

June 1, 2016

Re: Substantive Workshop for proposed amendment to Comprehensive Plan - Z1500084COMP
Morningside Investments LLC (North Indian Trail neighborhood)

Dear Plan Commissioners:

There is a substantial amount of information available for your review prior to the substantive workshop on June 8. Attached for your reference are the application materials and the revised SEPA checklist from the applicant. Also attached is a list of comprehensive plan policies which may be relevant to the discussion.

The website contains the traffic study and other relevant documents. The main project page address is: https://my.spokanecity.org/projects/comprehensive-plan-amendment-cycle-2015-2016/

The Morningside specific page is: https://my.spokanecity.org/projects/morningside-investments-llc-comprehensive-plan-amendment/

Public comment has continued to be updated to the FTP site. As I have provided to your earlier, the FTP site for the public comment is:

https://ftp.spokanecity.org
username: tempftp6ro
password: 4K7p737j

Sincerely,

Tirrell Black, AICP
Associate Planner

Return to Table of Contents

Excerpt Goals/Policies City of Spokane Comprehensive Plan

For Discussion Purposes, these have been excerpted from the Comp Plan. For full copy of City of Spokane Comprehensive Plan go to: my.spokanecity.org/services/

From Chapter 3, Land Use:

LU 1 CITYWIDE LAND USE

Goal: Offer a harmonious blend of opportunities for living, working, recreation, education, shopping, and cultural activities by protecting natural amenities, providing coordinated, efficient, and cost effective public facilities and utility services, carefully managing both residential and nonresidential development and design, and proactively reinforcing downtown Spokane's role as the urban center.

Policy:

LU 1.3 Single-Family Residential Areas

Protect the character of single-family residential neighborhoods by focusing higher intensity land uses in designated centers and corridors.

Discussion: The city's residential neighborhoods are one of its most valuable assets. They are worthy of protection from the intrusion of incompatible land uses. Centers and corridors provide opportunities for complementary types of development and a greater diversity of residential densities. Complementary types of development may include places for neighborhood residents to work, shop, eat, and recreate. Development of these uses in a manner that avoids negative impacts to surroundings is essential. Creative mechanisms, including design standards, must be implemented to address these impacts so that potential conflicts are avoided.

Policy: LU 1.4 Higher Density Residential Uses

Direct new higher density residential uses to centers and corridors designated on the land use plan map.

Discussion: Higher density housing of various types is the critical component of a center. Without substantially increasing population in a center's immediate vicinity, there is insufficient market demand for goods and services at a level to sustain neighborhood-scale businesses. Higher density residential uses in centers range from multi-story condominiums and apartments in the middle to small-lot homes at the edge. Other possible housing types include townhouses, garden apartments, and housing over retail space.

To ensure that the market for higher density residential use is directed to centers, future higher density housing generally is limited in other areas. The infill of Residential 15+ and Residential 15-30 residential designations located outside centers are confined to the boundaries of existing multi-family residential designations where the existing use of land is predominantly higher density residential.

From Chapter 3, Land Use:

LU 3 EFFICIENT LAND USE

Goal: Promote the efficient use of land by the use of incentives, density and mixed-use development in proximity to retail businesses, public services, places of work, and transportation systems.

Policy:

LU 3.1 Coordinated and Efficient Land Use
Encourage coordinated and efficient growth and development through infrastructure financing and construction programs, tax and regulatory incentives, and focused growth in areas where adequate services and facilities exist or can be economically extended.

Discussion: Future growth should be directed to locations where adequate services and facilities are available. Otherwise, services and facilities should be extended or upgraded only when it is economically feasible to do so.

The centers and corridors designated on the land use plan map are the areas of the city where incentives and other tools should be used to encourage infill development, redevelopment and new development. Examples of incentives the city could use include assuring public participation, using public facilities and lower development fees to attract investment, assisting with project financing, zoning for mixed-use and higher density development, encouraging rehabilitation, providing in-kind assistance, streamlining the permit process, providing public services, and addressing toxic contamination, among other things.

LU 3.2 Centers and Corridors
Designate centers and corridors (neighborhood scale, community or district scale, and regional scale) on the land use plan map that encourage a mix of uses and activities around which growth is focused.

Discussion: Suggested centers are designated where the potential for center development exists. Final determination is subject to the neighborhood planning process.

Neighborhood Center
Neighborhood centers designated on the Land Use Plan map have a greater intensity of development than the surrounding residential areas. Businesses primarily cater to neighborhood residents, such as convenience businesses and services. Drive-through facilities, including gas stations and similar auto-oriented uses tend to provide services to people living outside the surrounding neighborhood and should be allowed only along principal arterials and be subject to size limitations and design guidelines. Uses such as a day care center, a church, or a school may also be found in the neighborhood center.

Businesses in the neighborhood center are provided support by including housing over ground floor retail and office uses. The most dense housing should be focused in and around the neighborhood center. Density is high enough to enable frequent transit service to a neighborhood center and to sustain neighborhood businesses. Housing density should decrease as the distance from the neighborhood center increases. Urban design guidelines of the Comprehensive Plan or a neighborhood plan are used to guide architectural and site design to promote compatible, mixed land uses, and to promote land use compatibility with adjoining neighborhoods.

Buildings in the neighborhood center are oriented to the street. This encourages walking by providing easy pedestrian connections, by bringing activities and visually interesting features closer to the street, and by providing safety through watchful eyes and activity day and night. Parking lots should not dominate the frontage of these pedestrian-oriented streets, interrupt pedestrian routes, or negatively impact surrounding neighborhoods. Parking lots should be located behind or on the side of buildings as a rule.

To promote social interaction and provide a focal point for the center, a central gathering place, such as a civic green, square, or park, should be provided. To identify the center as the major activity area of the neighborhood, it is important to encourage buildings in the core area of the neighborhood center to be taller. Buildings up to three stories are encouraged in this area. Attention is given to the design of the circulation system so pedestrian access between residential areas and the neighborhood center is provided. To be successful, centers need to be integrated with transit. Transit stops should be conveniently located near commercial and higher density residential uses, where transit service is most viable.

The size and composition of neighborhood centers, including recreation areas, vary by neighborhood, depending upon location, access, neighborhood character, local desires, and market opportunities. Neighborhood centers should be separated by at least one mile (street distance) or as necessary to provide economic viability. As a general rule, the amount of commercial space and percent devoted to office and retail should be proportional to the number of housing units in the neighborhood. The size of individual commercial business buildings should be limited to assure that the business is truly neighborhood serving. The size of the neighborhood center, including the higher density housing surrounding the center, should be approximately 15 to 25 square blocks. The density of housing should be about 32 units per acre in the core of the neighborhood center and may be up to 22 units per acre at the perimeter.

LU 3.3 Planned Neighborhood Centers

Designate new centers or corridors in appropriate locations on the land use plan map through a neighborhood planning process.

Discussion: The comprehensive plan recognizes that centers and corridors are the most appropriate venue for the location of commercial and higher density residential uses. In some areas of the city, there may be a need to establish a center or corridor. The exact location, boundaries, size, and mix of land uses in a potential neighborhood center should be determined through the neighborhood planning process. This process may be initiated by the city at the request of a neighborhood or private interest. Objective criteria should include:

- existing and planned density;
- amount of commercial land needed to serve the neighborhood;
- transportation investments and access including public transit; and
- other characteristics of a neighborhood center as provided in this plan, or as further refined.

LU 3.4 Planning for Centers and Corridors

Utilize basic criteria for growth planning estimates and, subsequently, growth targets for centers, and corridors.

Discussion: Growth planning estimates and growth targets for centers and corridors should be based on:

- availability of infrastructure;
- public amenities and related facilities and services capacity for residential and commercial development;
- existing and proposed residential densities and development conditions;
- accessibility of transit; and,
- density goals for centers and corridors.

LU 3.5 Mix of Uses in Centers

Achieve a proportion of uses in centers that will stimulate pedestrian activity and create mutually reinforcing land uses.

Discussion: Neighborhood, District, and Employment Centers are designated on the land use plan maps in areas that are substantially developed. New uses in centers should complement existing on-site and surrounding uses, yet seek to achieve a proportion of uses that will stimulate pedestrian activity and create mutually reinforcing land use patterns. Uses that will accomplish this include public, core commercial/office and residential uses.

All centers are mixed-use areas. Some existing uses in designated centers may fit with the center concept; others may not. Planning for centers should first identify the uses that do not fit and identify sites for new uses that are missing from the existing land use pattern. Ultimately, the mix of uses in a center should seek to achieve the following minimum requirements:

TABLE LU 1 MIX OF USES IN CENTERS

Use	Neighborhood Center	District and Employment Center
Public	10 percent	10 percent
Commercial/Office	20 percent	30 percent
Higher Density Housing	40 percent	20 percent
Note: All percentage ranges are based on site area, rather than square footage of building area.		

This recommended proportion of uses is based on site area and does not preclude additional upper floors with different uses.

The ultimate mix of land uses and appropriate densities should be clarified in a site-specific planning process in order to address site-related issues such as community context, topography, infrastructure capacities, transit service frequency, and arterial street accessibility. Special care should be taken to respect the context of the site and the character of surrounding existing neighborhoods. The 10 percent public use component is considered a goal and should include land devoted to parks, plazas, open space, and public facilities.

LU 3.6 Neighborhood Centers

Designate the following seven locations as neighborhood centers on the land use plan map.

- Indian Trail and Barnes;
- South Perry;
- Grand Boulevard/12th to 14th;
- Garland;
- West Broadway;
- Lincoln and Nevada;
- Fort George Wright Drive and Government Way.

From Chapter 3, Land Use:

LU 4 TRANSPORTATION

Goal: Promote a network of safe and cost effective transportation alternatives, including transit, carpooling, bicycling, pedestrian-oriented environments, and more efficient use of the automobile, to recognize the relationship between land use and transportation.

Policy:

LU 4.1 Land Use and Transportation

Coordinate land use and transportation planning to result in an efficient pattern of development that supports alternative transportation modes consistent with the transportation chapter and makes significant progress toward reducing sprawl, traffic congestion, and air pollution.

Discussion: The GMA recognizes the relationship between land use and transportation. It requires a transportation element that implements, and is consistent with, the land use element.

The transportation element must forecast future traffic and provide information on the location, timing, and capacity needs of future growth. It must also identify funding to meet the identified needs. If probable funding falls short of needs, the GMA requires the land use element to be reassessed to ensure that needs are met.

From Chapter 3, Land Use:

LU 5 DEVELOPMENT CHARACTER

Goal: Promote development in a manner that is attractive, complementary, and compatible with other land uses.

Policy:

LU 5.1 Built and Natural Environment

Ensure that developments are sensitive to and provide adequate impact mitigation so that they maintain and enhance the quality of the built and natural environment (e.g., air and water quality, noise, traffic congestion, and public utilities and services).

LU 5.5 Compatible Development

Ensure that infill and redevelopment projects are well-designed and compatible with surrounding uses and building types.

From Chapter 4, Transportation:

TR 3 TRANSPORTATION AND LAND USE

Goal: Recognize the key relationship between the places where people live, work, and shop and their need to have access to these places; use this relationship to promote land use patterns, transportation facilities, and other urban features that advance Spokane' s quality of life.

Policy:

TR 3.1 Transportation and Development Patterns

Use the city's transportation system and infrastructure to support desired land uses and development patterns, especially to reduce sprawl and encourage development in urban areas.

Discussion: Transportation and land use planning must be coordinated for the city to function smoothly, efficiently, and healthily. Investments in new transportation infrastructure can have both positive and negative impacts on the city. For example, while it may be relatively easy to build new streets or expand existing streets at the edge of the city to add transportation capacity, that can lead to sprawling development that, in the long run, is costly to the city.
This policy is particularly important given two goals of the GMA, which state:

- "Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner."

- "Reduce the inappropriate conversion of undeveloped land into sprawling, low density development."

From Chapter 5, Capital Facilities & Utilities:

CFU 2 CONCURRENCY

Goal: Ensure that those public facilities and services necessary to support development are adequate to serve the development and available when the service demands of development occur without decreasing current service levels below locally established minimum standards.

Policy
CFU 2.1 Available Public Facilities

Consider that the requirement for concurrent availability of public facilities and utility services is met when adequate services and facilities are in existence at the time the development is ready for occupancy and use, in the case of water, wastewater and solid waste, and at least a financial commitment is in place at the time of development approval to provide all other public services within six years.

Discussion: Public facilities are those public lands, improvements, and equipment necessary to provide public services and allow for the delivery of services. They include, but are not limited to, streets, roads, highways, sidewalks, street and road lighting systems, traffic signals, domestic water systems, storm and sanitary sewer systems, solid waste disposal and recycling, fire and police facilities, parks and recreational facilities, schools and libraries.

It must be shown that adequate facilities and services are available before new development can be approved. While occupancy and use imply an immediate need for water, wastewater and solid waste services, other public services may make more sense to provide as the demand arises. For example, a certain threshold of critical mass is often needed before construction of a new fire station, school, library, or park is justified. If these facilities and services do not currently exist, commitments for services may be made either from the public or the private sector. Public commitments are documented through the Capital Facilities Program and the relevant Six-Year Capital Improvement Plans.

If there is no public commitment to provide needed resources, the development could still proceed if the developer assumes responsibility for provision of all needed facilities and services, either through actual provision of the facility or service, or appropriate financial assurances that facilities and services will be provided in a timely manner. In this case, the City of Spokane may enter into an agreement with the developer for repayment through latecomer fees, special connection fees, or other payments earmarked for or pro-ratable to the particular system improvement.

Policy
CFU 2.2 Concurrency Management System

Maintain a concurrency management system for all capital facilities.

Discussion: A concurrency management system is defined as an adopted procedure or method designed to ensure that adequate public facilities and services needed to support development and protect the environment are available when the service demands of development occur.

The following facilities must meet adopted level of service standards and be consistent with the concurrency management system: fire protection, police protection, parks and recreation, libraries, public wastewater (sewer and stormwater), public water, solid waste disposal and recycling, transportation, and schools.

The procedure for concurrency management includes annual evaluation of service levels and land use trends in order to anticipate demand for service and determine needed improvements.

Findings from this review will then be addressed in the Six-Year Capital Improvement Plans, Annual Capital Budget, and all associated capital facilities documents to ensure that financial planning remains sufficiently ahead of the present for concurrency to be evaluated.

The City of Spokane must either ensure that adequate facilities are available to support development or else prohibit development approval when such development would cause service levels to decline below standards currently established in the Capital Facilities Program.

In the event that reduced funding threatens to halt development, it is much more appropriate to scale back land use objectives than to merely reduce level of service standards as a way of allowing development to continue. This approach is necessary in order to perpetuate a high quality of life. All adjustments to land use objectives and service level standards will fall within the public review process for annual amendment of the Comprehensive Plan and Capital Facilities Program.

Policy

CFU 2.2 Concurrency Management System

Maintain a concurrency management system for all capital facilities.

Discussion: A concurrency management system is defined as an adopted procedure or method designed to ensure that adequate public facilities and services needed to support development and protect the environment are available when the service demands of development occur.
The following facilities must meet adopted level of service standards and be consistent with the concurrency management system: fire protection, police protection, parks and recreation, libraries, public wastewater (sewer and stormwater), public water, solid waste disposal and recycling, transportation, and schools.

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CFU 2.6 Funding Shortfalls

Reassess the land use element whenever probable funding falls short of meeting existing needs in order to ensure that development patterns and level of service standards remain consistent with financing capabilities related to capital facilities plans.

Discussion: The GMA requires consistency and conformity between plans and budgets so that development does not occur before there are adequate services to support it. In this regard, the land use

element, capital facilities plan element, and financing plan within the capital facilities plan element should be coordinated and consistent.

In the event that reduced funding threatens to halt development, it is much more appropriate to scale back land use objectives than to reduce level of service standards as a way of allowing development to continue. This approach is necessary in order to perpetuate a high quality of life.

All adjustments to land use objectives and service level standards will fall within the public review process for annual amendment of the comprehensive plan and Capital Facilities Program.

From Chapter 5, Capital Facilities & Utilities:

CFU 4 SERVICE PROVISION

Goal: Provide public services in a manner that facilitates efficient and effective delivery of services and meets current and future demand.

Policy
CFU 4.1 Compact Development

Promote compact areas of concentrated development in designated centers to facilitate economical and efficient provision of utilities, public facilities, and services.

Discussion: Infill and dense development should be encouraged where excess capacity is available since compact systems are generally less expensive to build and maintain. However, it may also be necessary to periodically include upgrades in the Six-Year Capital Improvement Plans if sufficient capacity is not currently available to support intensification of development in target areas.

From Chapter 5, Capital Facilities & Utilities:

CFU 6 MULTIPLE OBJECTIVES

Goal: Use capital facilities and utilities to support multiple interests and purposes.

Policy
CFU 6.1 Community Revitalization

Provide capital facilities and utility services strategically in order to encourage and support the development of Centers and Corridors, especially in older parts of the city.

Discussion: Public investment often needs to be the first step toward revitalization of a community. Once the public sector takes steps to rehabilitate and improve dilapidated and deteriorated areas of the city, this inspires the confidence that encourages private investment to follow.

While Six-Year Capital Improvement Plans must cover maintenance and repair of existing facilities, projects that expand facilities and services must be done with land use objectives in mind in recognition of the key link between service levels and development. In the past, of capital infrastructure facilities (roads, sewers, water lines, and parks) at the edge of the city limits and beyond has facilitated sprawl and accommodated its impacts. This practice in turn drained away resources needed to meet the service requirements of the inner city neighborhoods. A good rule of thumb for the future is to spend a higher than proportionate share of all capital dollars in central city neighborhoods in order to bring infrastructure back into the older parts of the city where the need for revitalization is greatest. In this way, the economic

viability and desirability of the city center can be restored, creating a cycle of enhancement that sustainable.

From Chapter 6, Housing:

H 1 AFFORDABLE HOUSING

Goal: Provide sufficient housing for the current and future population that is appropriate, safe, and affordable for all income levels.

H 1.4 Use of Existing Infrastructure

Direct new residential development into areas where community and human public services and facilities are available and in a manner that is compatible with other Comprehensive Plan elements.

Discussion: Using existing services and infrastructure often reduces the cost of creating new housing. New construction that takes advantage of existing services and infrastructure conserves public resources that can then be redirected to other needs such as adding amenities to these projects.

H 2 HOUSING CHOICE AND DIVERSITY

Goal: Increase the number of housing alternatives within all areas of the city to help meet the changing needs and preferences of a diver se population.

Policy
H 2.1 Distribution of Housing Options

Promote a wide range of housing types and housing diversity to meet the needs of the diverse population and ensure that this housing is available throughout the community for people of all income levels and special needs.

Discussion: A variety of housing types should be available in each neighborhood. The variety of housing types should not concentrate or isolate lower-income and special needs households.
Diversity includes styles, types, and cost of housing.

Many different housing forms can exist in an area and still exhibit an aesthetic continuity. In many cases, -based design guidelines will be available to guide the design of the housing forms. Allowing a wide range of housing types throughout the city provides the opportunity for increased socioeconomic integration.

Housing standards that will be allowed throughout the city include small single-family lot sizes, manufactured housing on single-family lots, townhouses, condominiums, clustering, and other options that increase the supply of affordable home ownership opportunities.

From Chapter 8, Urban Design & Historic Preservation:

DP 1 PRIDE AND IDENTITY

Goal: Enhance and improve Spokane's visual identity and community pride while striving to maintain its visual diversity.

Policy
DP 1.4 New Development in Established Neighborhoods

Ensure that new development is of a type, scale, orientation, and design that maintains or improves the character, aesthetic quality, and livability of the neighborhood.

Discussion: While compatibility is more of an issue in established neighborhoods, new development needs to take into account the context of the area and should result in an improvement to the surrounding neighborhood.

DP 3 FUNCTION AND APPEARANCE

Goal: Use design to improve how development relates to and functions within its surrounding environment.

Policy

DP 3.8 Infill Development

Ensure that infill construction and area redevelopment are done in a manner that reinforces the established neighborhood character and is architecturally compatible with the surrounding existing commercial and residential areas.

Discussion: Infill construction can represent a benefit to the community that does not necessitate an expansion of the infrastructure when done in a manner that does not detract from the area. Flexible design standards enable infill development that is architecturally compatible with the context of the proposed area by permitting higher intensity activities without detracting from the existing character of the area.

DP 6 NEIGHBORHOOD QUALITIES

Goal: Preserve, improve, and support the qualities of individual neighborhood areas.

Policy

DP 6.2 Access to Housing Choices

Encourage building and site design that that allows a variety of housing forms while being compatible with the character of the immediate surrounding area, thereby generating community support for development at planned densities.

Discussion: Increasing housing densities and innovative development protects special sites, and enables the efficient use of remaining buildable land, the efficient and cost effective provision of city facilities and services, the provision of affordable housing, and the promotion of increased ridership on mass transit. A variety of housing types, such as townhouses, courtyard buildings, and housing clusters, contributes to housing diversity and interest, and provides more opportunities for prospective residents. Design that is compatible with the surroundings helps make increased densities acceptable to the current residents. Higher residential density in commercial areas can provide additional economic stability for businesses while lessening automobile dependence.

N 8 NEIGHBORHOOD PLANNING PROCESS

Goal: Ensure a sense of identity and belonging for neighborhoods throughout the city and the city' s Urban Growth Area by developing a neighborhood planning process that is all-inclusive, maintains the integrity of neighborhoods, implements the comprehensive plan, and empowers neighborhoods in their decision-making.

Policy

N 8.4 Consistency of Plans

Maintain consistency between neighborhood planning documents and the comprehensive plan.

Discussion: The "framework" comprehensive plan guides all aspects of the city's growth and development for the next twenty years. The plan provides the overall scheme of city

development: the major land uses, transportation systems, parks, recreation, and open spaces, and centers of shopping and employment. The comprehensive plan establishes the framework for all other planning activities and documents.

It is recognized that in some cases neighborhood planning may result in recommended changes to the comprehensive plan. Comprehensive Plan changes will be reviewed and decided upon once each year.

(end)

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June 8, 2015

Plan Commission Packet

Shaping Spokane

2017 Update to the
Comprehensive Plan

Part I

Cover Letter

June 1, 2016

Re: Information for June 8, 2016 Plan Commission Workshop on Comprehensive Plan Update

Dear Plan Commission Members:

I am pleased to provide to you the next two chapters to be considered by the Plan Commission for Shaping Spokane, the 2017 update to the City's Comprehensive Plan. Enclosed in this packet please find Chapter 1, the Introduction, and Chapter 3, the Land Use Chapter. As we discussed at the last workshop, Shaping Spokane is a minor update to the Comprehensive Plan, designed to streamline the document through removal of unnecessary discussion and redundant policies, the addition of clarification where needed, and updates to pertinent data, numbers, and facts.

As with the last chapter presented to the Plan Commission, the following are general guidelines used during the review and editing process:

- This is an update, not a re-write.
- Introductions should be short and to the point.
- Individual chapter references to GMA Goals & Requirements and Countywide Planning Policies were moved to an appendix.
- References to the 2001 Horizon's Process (the six-year citizen participation process for the Plan) were replaced with references to citizen participation efforts because people may not recognize the name of this planning effort anymore.
- Streamline the document by removing redundant and duplicative language.
- Clarify goal or policy language when not easily understood.
- Shorten discussion sections where possible to make them easier to read.

Items not addressed:

- The "Visions & Values" sections of the chapters were not amended during this process.
- Goals and policies were generally not removed unless duplicative or no longer relevant. In some cases, they were simply moved to another part of the chapter. If they were removed, a comment box has been included to indicate why.

How to read the draft chapters:

- Prior to a scheduled workshop on a particular chapter or chapters, staff will send you two versions of each chapter to be reviewed. One version shows the "track changes," with new additions or items that have been moved from another location underlined in red. Items that have been removed or moved to another location will be crossed out in red. The second version is a "clean" reformatted copy.

- Red text boxes contain comments for discussion purposes. They will not to be part of the final document.
- If no comment box exists, the changes are minor in nature.

There is a new box to consider – one you will see in Chapter 3, Land Use. Several topics have been identified by either staff or the participating Focus Groups that require considerable discussion, research, or other efforts to address. Because time is short to meet the State-mandated timeline for this update the additional work cannot be completed prior to adoption of Shaping Spokane. These items will be included in a new Chapter 2 – Implementation, where the needed tasks will be discussed in general and the effort(s) required to consider the topic will be described. Staff has identified these topics and issues with a green text box.

June 8, 2016 Workshop Items

1. Draft Introduction Chapter

Attached you will find the Draft Introduction Chapter (Chapter 1) for review at your upcoming workshop on June 8. This is the second of several chapters that you will be reviewing over the next several months. Chapter 1 is a combination of both Chapter 1 and Chapter 2 of the current Comprehensive Plan. They have been combined here for streamlining purposes and in preparation for a new Chapter 2 – Implementation (see the discussion above). Where individual pieces of either Chapter 1 or 2 have been placed in the new Chapter staff has endeavored to label the source of a given subsection in a red text box. At the beginning of the chapter is a handy table, also in red, giving a rundown of the existing parts of Chapter 1 and 2 and their eventual destination in this new Chapter 1.

2. Draft Land Use Chapter

As with the Neighborhood Chapter that you reviewed previously, the Land Use Chapter underwent extensive review and modification by a focus group, starting in 2013. Some minor changes have been made since then by staff, largely in the area of grammar, tense, and readability. Please see the end of this packet for a list of the land use Focus Group members.

Thank you all again for your attention and time with this extensive process. Jo Anne Wright and the members of the Comprehensive Plan, Neighborhoods, and Codes team look forward to seeing you on June 8.

Sincerely,

Kevin Freibott
Comprehensive Plan, Neighborhoods, and Codes Team

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June 8, 2015

Plan Commission Packet

Shaping Spokane

2017 Update to the
Comprehensive Plan

Part II

Chapter 1 – Introduction

TRACKED CHANGES

CHAPTER CONTENTS

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2.6 OVERVIEW PLANNING EFFORTS 18

The Chapter Contents have not been updated. They will be updated with the correct subsections and page numbers at the end of the approval process.

Note: Former Chapter 1 - Introduction and Chapter 2 - Background were combined in this draft. The contents of the former sections were renumbered as follows:

Draft section	Former sections
1.1 Purpose of the Comprehensive Plan	1.1 Purpose of the Comprehensive Plan
1.2 Local Context	2.1 Local Context
1.3 State Requirements and Regional Planning	2.2 Growth Management Act Overview 2.3 Countywide Planning Policies Overview
1.4 Plan Development Process and Adoption	2.4 Horizons Process Overview 1.2 Plan Adoption and Amending the Plan (portion)
1.5 Overview of Planning Efforts	2.6 Overview of Planning Efforts
1.6 Implementation – Carrying out the Plan	1.3 Implementation - Carrying out the Plan
1.7 Monitoring and Evaluation	1.4 Monitoring and Evaluation
1.8 Amendments	1.2 Plan Adoption and Amending the Plan (portion) 2.5 Comprehensive Plan Update of 2006 Overview (portion)

1.1 PURPOSE OF THE COMPREHENSIVE PLAN

What is Comprehensive Planning

Original Source: Chapter 1.1

Planning is a part of everyone's life. We make plans for our careers, vacations, families, and housing. Planning is how we increase the likelihood that these things will occur in ways we desire. Without plans, we face never-ending uncertainty about future events. Consequently, we end up reacting to one situation after another.

For similar reasons, communities make plans. In large urban areas where the landscape is highly complex and constantly changing, community plans shape the future in desirable ways. The city is a place where people have many varied needs, a place where citizens live, work, shop, and play. It is, therefore, a place where material goods, police and fire protection, sewers, water, transportation, recreation, and many other services must be provided.

Comprehensive Plan is the name given to identify the community's long-range plan for growth. It is comprehensive because it provides guidance for all aspects of the city's growth and development over a long period, typically twenty-years – an entire generation. The plan is a set of goals, policies, maps, illustrations, and implementation strategies that state how the city should grow physically, socially, and economically.

The Comprehensive Plan provides the overall scheme of city development – the major land uses, transportation systems, parks, recreation, and open spaces, and centers of shopping and employment. This plan establishes the framework for all other planning activities and documents. By law, decision-makers and managers in city government must follow the direction of the Comprehensive Plan.

This paragraph was removed for streamlining purposes.

~~Some of the earliest planning activities in the early 1900s centered around parks and transportation. From these early beginnings, planning in Spokane has continued to grow in significance and usefulness. In 1968, the city adopted the first land use plan as one element of the comprehensive plan. The 1968 Land Use Plan was updated in 1983. Over the years, the topics in the Comprehensive Plan have expanded to include parks and open spaces, bikeways, water and wastewater facilities, shorelines, individual neighborhoods, and many others. In 2000, the Comprehensive Plan consisted of over 30 official documents.~~

The City of Spokane's Comprehensive Plan

When the state enacted the Growth Management Act (GMA) in 1990, it changed the purposes of comprehensive plans prepared under the GMA rules. Requirements to plan for housing and private utilities were added to the existing mandates to address land use, transportation, and capital facilities. In 2003, an additional requirement was added to include planning for shorelines. Chapter 14, Shorelines, was added in 2010. The GMA authorizes the inclusion of additional plan topics of specific local interest; the city chose to include economic development, social health, and five other planning subjects in its plan.

A reference to the Shorelines chapter was inserted here as it was added to the Comp Plan after 2006.

~~In its operation, t~~The 2001 ~~Comprehensive Plan provides the following direction~~s to city-elected officials and staff:

- Locations where growth should occur.
- Quantities and types of housing to shelter existing and future population.
- Transportation, public improvements, and public services that are desired.

- Ways to help create a healthy economic environment.
- Actions to protect the natural environment.
- Development patterns to provide cost-effective delivery of public services.
- Timing and conditions for annexation.

GMA includes provisions to ensure that the city follows these Comprehensive Plan directives. First, the city must regulate land use and development consistent with the plan; the zoning code, subdivision code, environmental ordinances, and building code must follow the plan's intent. Second, the city must make capital budget decisions and capital project investments in conformance with the plan. These two GMA rules give the new Comprehensive Plan a much higher level of importance in guiding the city's growth and development than previous editions of the plan.

These paragraphs were removed for streamlining purposes.

~~The overall purpose of the comprehensive plan is to provide Spokane residents with a high quality of life. When the city of Spokane is seen as a desirable place to live, work, shop and play, many of its problems will take care of themselves. New and existing businesses within the city will thrive, as will the people they employ. City of Spokane residents will be more likely to own their own home, improving neighborhood stability and cohesiveness. Our youth will choose to stay here as adults because it's a good place to make a living and raise a family. With their basic needs met, people will be more able to give back to the community through civic involvement. Last but not least, there will be a large enough population base and high enough property values to generate the revenue stream needed for city government to provide the level and quality of public services that people expect and deserve. Then, the city of Spokane will truly be the crown jewel of the Inland Empire.~~

~~Spokane's Ambitions for the Future~~

~~The future is all about change. Through this plan, Spokane citizens express several ambitions for the changes they wish to see in the near future. At the center of these ambitions is a desire to improve community health broadly – to improve the conditions of all citizens and provide every individual greater opportunity to succeed. In this pursuit, the Comprehensive Plan attempts two key achievements: first, it seeks to increase value throughout the city, and second, it hopes to economically re-integrate the urban area to create an income profile within the city that is characteristic of healthy places. At the core of each of these ambitions is the desire to reverse the increasing decline in personal income and total assessed property valuation, relative to the unincorporated Spokane County. If Spokane can overcome these two conditions, the community will be on the road to improved well being.~~

~~What does this plan propose that will increase values throughout Spokane? It offers the opportunity for higher value in aggregate disposable income by creating new venues for jobs within neighborhoods and employment centers. Not just any jobs, but livable wage jobs born by new industries attracted by a more urban and diverse place. It creates more value in both private and public property by promoting the best patterns of urban development – infill and mixed-use development – and rejecting the worst – leapfrog growth and segregated land uses. It raises the value of the uniqueness of individual citizens by addressing the wide array of social needs and lifestyle preferences represented in a diverse community. The ability to make a decision of choice – to select from options – is one of the things people most value, and this plan offers new choices in housing, transportation, employment, living environment, cultural experience, and social engagement. The Comprehensive Plan enhances the value of parks, open spaces and other public space by increasing their role and financial support in a growing city. It gives increased value to the natural environment, not just for its ecological importance but also for its attraction to industries that seek amenities for their managers and workforce. It also increases the value of the built environment by placing greater emphasis on the visual character of the things we build and the public spaces we create. The Comprehensive Plan gives equal value to the legacy of our city's past by promoting historic preservation as we grow.~~

~~This ambition to add value to everything that makes Spokane a city permeates every part of the new Comprehensive Plan. The measure of increased values is a good way to evaluate the Comprehensive Plan's success.~~

~~The hope to economically re-integrate the urban area is directly related to the growth strategy presented in the Comprehensive Plan. The flight of higher incomes to the unincorporated suburbs removes investment and tax revenues that are needed to maintain a high quality of life in the city. The various types of centers planned as the primary venues of growth are keyed to attracting higher incomes back to the city. These centers have features and characteristics not present within the urban area for the past 50 years – but these are exactly the kinds of living environments that attract higher income wage earners to other cities. This new lifestyle preference has grown with the change in family demographics and high technology growth industries – there are more and more people that desire the living intensity and diversity within concentrated urban centers. As centers grow in population and economic activity, the positive effects that they create such as convenience, social engagement, and amenities spread into the surrounding neighborhood and increase the attraction of these areas to higher incomes.~~

~~2.1~~1.2 LOCAL CONTEXT

Original source: Chapter 2.1

Over the decades, Spokane has been shaped by its notable beginning. Capturing the attention of fur traders, miners, missionaries and those with the "westward-ho" spirit, Spokane soon found its place on the map. Prior to 1800, Spokane was a Native American seasonal encampment located near the falls of the Spokane River.

It was not long, however, before James N. Glover, the "Father of Spokane," recognized the beauty and potential of the unscathed Spokane area. He acquired land rights from the first settlers who had arrived in 1871 and eventually established a store where he and his wife worked and resided. Glover grew exceedingly involved in the young town and was elected mayor in 1883.

In 1881, a short time before Glover assumed office, the town was incorporated as "Spokan Falls;" an 1883 amendment changed the spelling to "Spokane Falls." A few years later in 1891, "Spokane" became the official city name when "Falls" was dropped. The city limits at that time extended north to Garland Avenue, south to 29th Avenue, east to Regal Street and west to "H" Street, to encompass a total of 20 square miles.

In the midst of name changes and growth, Spokane suffered its share of tragic events. In August of 1889, a great fire destroyed large portions of the city with losses totaling more than $6 million. The need to rebuild the city served as the ideal opportunity to replace the old wood buildings with those made of stone and brick. Noted for their architectural and civic status, these buildings are still treasured by Spokane's citizens.

In 1911, Spokane citizens approved a one million dollar park bond, which was used to implement the city's first plan-- a park plan created by the world-famous landscape design firm, Olmsted Brothers. Implementation of the Olmsted plan increased Spokane's park size from 173 acres to 1,934 acres and firmly established Spokane's park system as one of the community's enduring assets.

Spokane grew rapidly in its early years, from a population of a mere 350 in 1880 to over 100,000 in 1910. To ensure that Spokane's beauty would be protected during the rapid growth period, the "City Beautiful" committee was formed as part of a nationwide planning movement. The committee devoted itself to~~ward~~ making Spokane a desirable place to live by enhancing its natural and built environment, both of which were highly prized by Spokane's early settlers who proudly used these assets to "boost" their young community and attract growing numbers of people to it. One of the results of Spokane's City Beautiful movement was the creation of the Park Board in 1907.

After 1910, the city's growth slowed and even declined between 1960 ~~to~~ and 1990. Fifty years following the mighty fire, the threat and formidable presence of war in the 1940s knocked at Spokane's door and made it a center for wartime activity. Over the next thirty years, Spokane continued to develop both commercially and industrially. A ~~C~~considerable number of housing developments further shaped Spokane's neighborhoods, gradually spreading into the unincorporated area of Spokane County where most of the new development began to take place.

In 1974, Spokane hosted EXPO '74, the World's Fair. An immediate success, the fair drew huge crowds throughout the summer. The intrigued crowds thronged through the EXPO site, which had only recently been cleared of the railroad lines that had once crowded the river front site. Today, the Great Northern Depot tower remains as a feature of the park and serves as a reminder of the integral role the railroad played in shaping Spokane.

Growth of the City

This text was moved here from Chapter 3.1

When the city was incorporated as "Spokan Falls" in 1881, it covered an area roughly the same size as the present Central Business District. Spokane's population in 1900 was over 36,000, nearly double that of a decade earlier. There were 300 business and industrial enterprises, 108 saloons, 56 churches, 2,500 telephones, and 42 miles of street railways. By 1920, the city's population had grown to over 104,000. Between 1920 and 1990, population grew at a much slower rate than earlier years. The population was 171,300 in 1980 and 177,165 in 1990, a 3 percent increase over this ten-year period. During the years between 1990 and 1995, the city's population growth was more rapid, increasing to 188,800, an expansion of more than 1 percent per year. Since 1995, the population has remained relatively stable, decreasing to an estimated 188,300 in 1998. The Census reported the City of Spokane's population for the year ~~2000~~2010 at ~~195,629~~ 208,916 and the Washington State Office of Financial Management has forecast the population for the year ~~2006~~ 2017 to be ~~201,600~~ 215,839. The recent population numbers show an increase of ~~13,300~~ 4,184 people ~~or over more than a 6 percent increase~~ over the ~~eight~~ five year period from ~~1998~~2010 to ~~2006~~2015.

Please note that these numbers have been updated to represent the latest projections (May 2016).

Geological History

Original source: Chapter 2.1

Spokane has been patterned over time by a succession of geological episodes. More than 16 million years ago, vast lava flows forged the area, creating a great bedrock plain that extended in multiple directions. During the ice age approximately 12,000 years ago, lobes of large glaciers traveled from the north, barricaded a large river basin in western Montana, and formed a gigantic lake ~~in~~ near modern-day Missoula. The lake was 7,600 square kilometers in area and approximately 600 meters deep.

The glaciers eventually began to retreat, which caused the ice dam to fracture, spilling huge walls of water 150 meters in height through Spokane and the surrounding region. Such events occurred more than a dozen times during the ice age, carving out deep canyons and leaving small remnants of the original plain. The receding flood waters left mass deposits of sand and gravel in the bottom of canyons. These flat areas made ideal locations for settlement, and formed a large ground water aquifer. The aquifer is now identified as the Spokane Valley - Rathdrum Prairie Aquifer and serves as Spokane's water supply.

The aquifer carries between 1,325,000 and 2,460,000 cubic meters of water each day and provides domestic water supply to most of the Spokane urbanized area. Additionally, the aquifer exchanges significant amounts of water with the Spokane River.

This was removed because it's not relevant to the discussion.

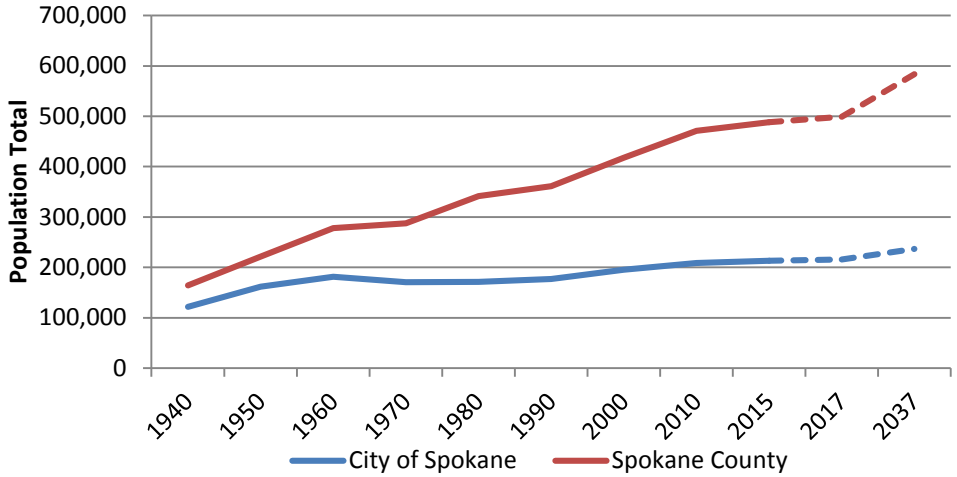
~~Sadly, much of the area's sanitary wastewater continues to be disposed of through individual septic tank and drain field systems that are located directly over the aquifer rather than through public sewer. Businesses that use hazardous materials perpetuate the pollution problems when they locate on land above the aquifer. These actions present great threats of contamination to our drinking water and produce much internal community strife.~~

~~In relation to the air shed, m~~Most of the urbanized area is located in the ~~valley of the~~ Spokane River valley,enclosed north and south by steep hillsides. ~~Together, with p~~Prevailing winds and frequent winter temperature inversions~~, this~~ tend~~s~~ to impound stagnant air and accumulated airborne pollutants near the ground's surface. Spokane is frequently in jeopardy of violating this country's strict air quality standards, a situation that has severe consequences for our municipality and its citizens. Automobile travel remains ~~as the number one~~a significant producer of airborne pollutants, which attests to the comprehensive plan's devotion toward exploring other means of transportation and ways in which to reduce automobile usage.

Population

The growth alternatives presented in the draft comprehensive plan are based on projected growth for Spokane County for the next twenty years as decided by elected officials from all jurisdictions in the county.

The charts on the following pages have been updated to the most current information.



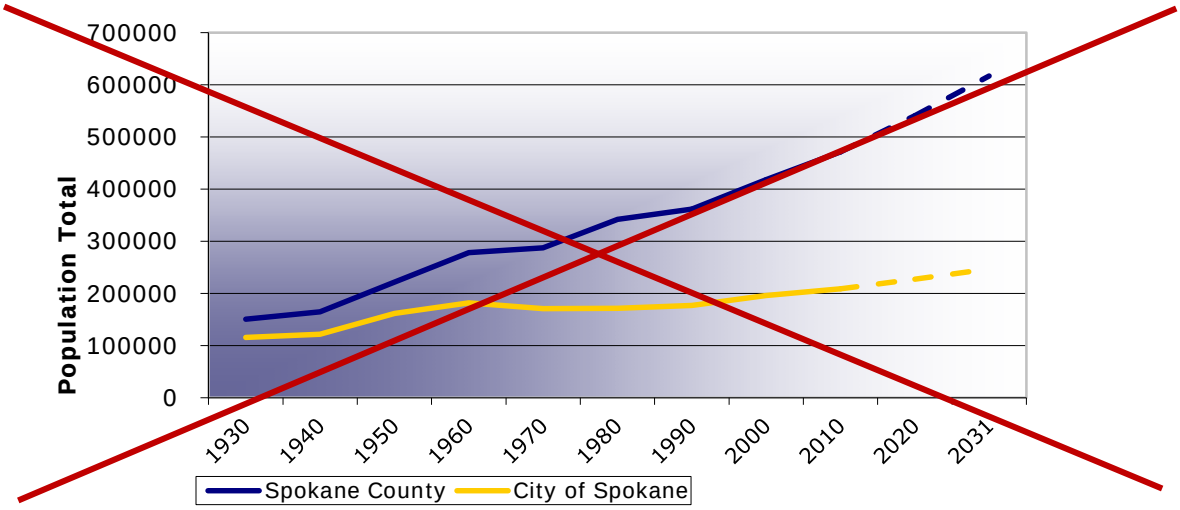
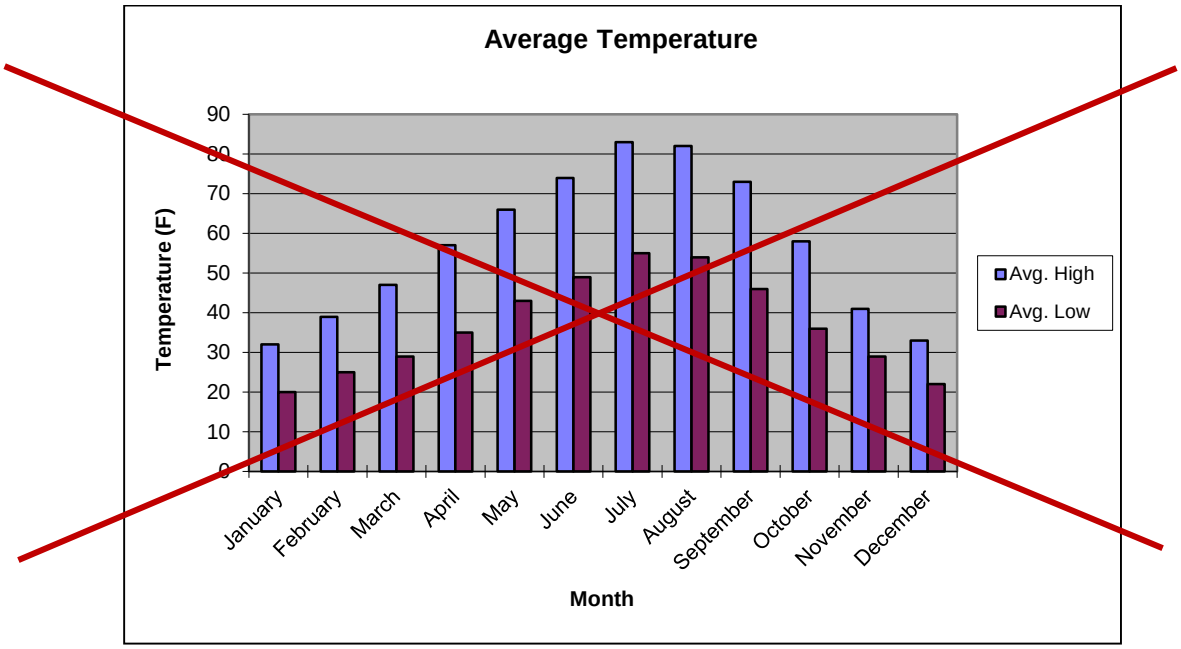


FIGURE 1 POPULATION GROWTH IN THE CITY OF SPOKANE AND SPOKANE COUNTY

CLIMATE AND REGION

Located 18 miles west of the Idaho border and 110 miles south of the Canadian border, Spokane enjoys each of the four seasons. Spokane typically averages 16.25 ~~to 22~~ inches of precipitation each year.

Additionally, the area receives approximately ~~50~~ 45 inches of snow and ice annually. The winds remain calm at an average of 8 ~~to 9~~ mph.



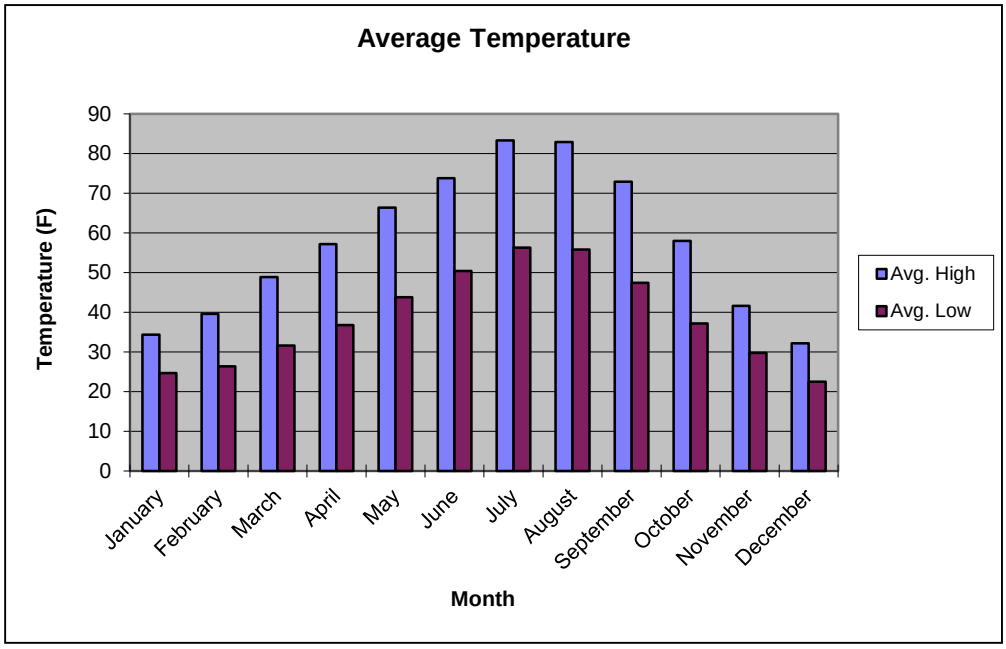
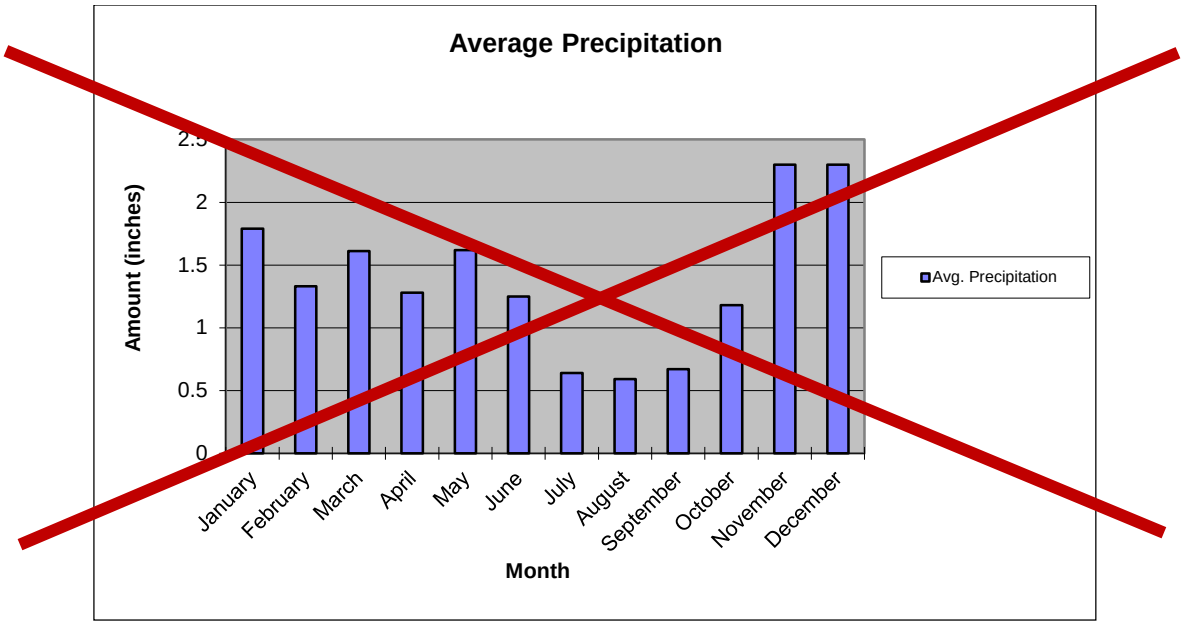
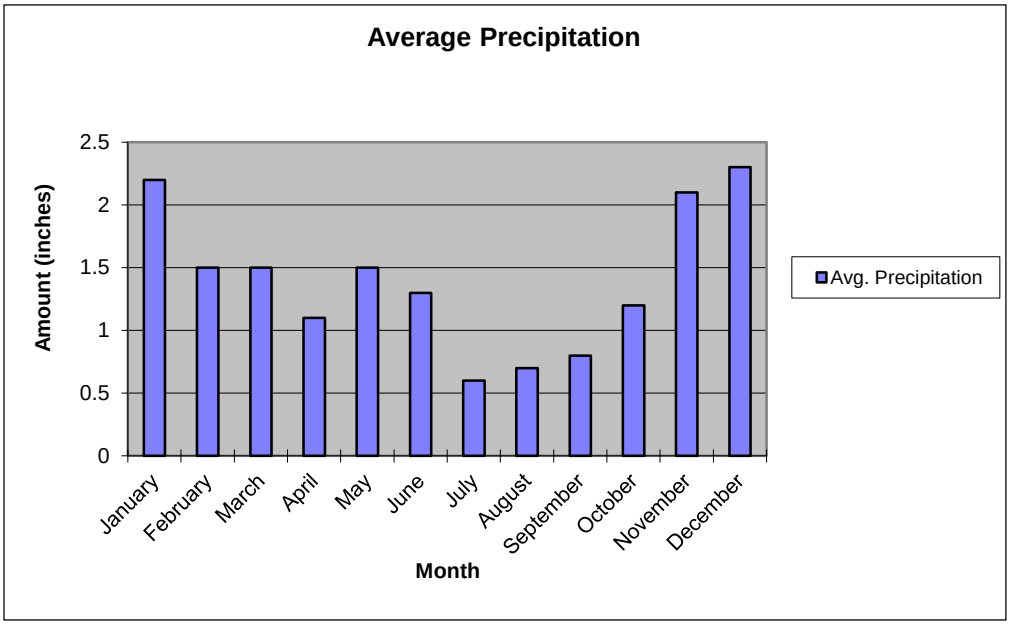


Figure 2 Average Monthly Temperatures for Spokane

Figure 3 Average Monthly Precipitation for Spokane





~~Urban Conditions and Poverty~~

Staff removed this discussion because of its negativity and that the information is largely out of date.

~~Once the grandest city in the state, Spokane's bustling urban environment and vital community health have faded over the last quarter of the 1900s. Contributors to the new comprehensive plan intend it to be a tool that will turn the tide and ensure that the 21st century is a bright, new era for Spokane. In the course of identifying effective strategies for positive change, the public took stock of Spokane's current urban conditions.~~

~~Disparate personal income is perhaps the urban condition that poses the biggest threat to community health. In 1999 David Rusk, one of the nation's foremost social analysts, observed that the Spokane metropolitan area became 40 percent more economically segregated in the twenty years from 1970 to~~

~~1990. He noted that, increasingly, higher income households are moving outside the urban core, and the core is predominately becoming the place of poverty. The community has recognized the magnitude of poverty in the area, but it continues to overlook the significance of poverty's geographic concentration in the city.~~

~~This condition is even more alarming than it appears on the surface. Spokane, once taking pride as the city of home ownership, now experiences an ownership rate that is lower than the unincorporated Spokane County and 10 percent lower than the national average. In some central city neighborhoods, the number of rental households is significantly greater than owner-occupied homes. This has multiple detrimental effects: high levels of transient residency that undermines social stability, low property maintenance that expresses itself as physical blight, and reduced capacity to create personal financial equity to offset inflation.~~

~~Our children are our future, but the city's urban conditions do not support their success. Thirty-seven percent of Spokane's children are in households below the 100 percent poverty level. Some elementary schools in central neighborhoods experience over 75 percent turnover each new school year – nearly four out of five students are not there the succeeding fall. These children can suffer from lack of diverse social interaction, inaccessibility to positive role models, poor nutrition, and sporadic after-school adult supervision. The chances are high that their future, as adults, will also be one of poverty.~~

~~There is a direct relationship between household incomes and local government's ability to support the community's desired quality of life. Funds to maintain streets, operate parks, provide police and fire protection, and run libraries come from locally generated sales and property taxes. The cost of these services is highest where the demands are greatest – at the center of population, in the city.~~

~~City income levels – nearly 10 percent lower that the unincorporated county and only two-thirds that of Seattle – don't generate sufficient tax revenues to maintain City of Spokane facilities and provide services at levels desired by citizens. The shrinkage in disposable income, and its effect on sales tax, is felt more severely as incomes decrease.~~

~~Income level also influences property taxes. People at lower income levels have less capacity to invest in real property, whether a personal residence or a local business. The City of Spokane is increasingly reliant on outside investment to improve property. The area's moderate historic growth and availability of non-city venues for growth and development have not supported investment in the city equal to that outside the city. From 1985 to 1995, total assessed valuation of property in the county grew to almost a billion dollars higher than that in the city, nearly a 400 percent increase in the difference in just 10 years. The City of Spokane's minority share of assessed valuation is greatly inconsistent with the higher demands for urban services created by the city's majority share of urban population, roughly double that of the unincorporated county.~~

~~Another dimension to the income problem is access to living wage jobs for those in poverty. Employment in the growth sectors where many of these job opportunities are emerging is largely outside the city at the urban edges. The mobility barriers faced by city households in poverty limit access to entry-level positions at these suburban locations. Mass transit does not offer convenient alternatives to many of these house-holds, particularly when child day care is part of the daily routine. The annual cost of owning one vehicle to commute to distant employment is equal to payments for a $40,000 home mortgage. So, these house-holds must choose between ownership of one or more vehicles or the ability to have a better place to live.~~

~~The answers to these conditions are included in the Comprehensive Plan. Once they are pursued with deliberation, Spokane will no longer be a place that struggles to maintain its quality of life in the face of increasing poverty.~~

~~2.2 GROWTH MANAGEMENT ACT OVERVIEW~~1.3 STATE REQUIREMENTS AND REGIONAL PLANNING

Original source: Chapter 2.2

The Growth Management Act (GMA) was adopted in 1990 by the State Legislature in response to rapid population growth in the Puget Sound region on the western side of the state. A few years later, Spokane County also experienced unprecedented growth and was required to become part of growth management. The GMA goals are not listed in order of priority and are used exclusively for the purpose of guiding the development of comprehensive plans and development regulations. The following ~~thirteen~~ fourteen GMA goals are what the City of Spokane must achieve, and are consistent with the community's vision for its future.

- **Urban Growth.** Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.
- **Reduce Sprawl.** Reduce the inappropriate conversion of undeveloped land into sprawling, low density development.
- **Transportation.** Encourage efficient multimodal transportation systems that are based on regional priorities and coordinated with county and city comprehensive plans.
- **Housing.** Encourage the availability of affordable housing to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.
- **Economic Development.** Encourage economic development throughout the state that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons, promote the retention and expansion of existing businesses and recruitment of new businesses, recognize regional differences impacting economic development opportunities, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.
- **Property Rights.** Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.
- **Permits.** Applications for both state and local government permits should be processed in a timely and fair manner to ensure predictability.
- **Natural Resource Industries.** Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries. Encourage the conservation of productive forest and productive agricultural lands, and discourage incompatible uses.
- **Open Space and Recreation.** Retain open space, enhance recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities.
- **Environment.** Protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water.
- **Citizen Participation and Coordination.** Encourage the involvement of citizens in the planning process and ensure the coordination between communities and jurisdictions to reconcile conflicts.
- **Public Facilities and Services.** Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.
- **Historic Preservation.** Identify and encourage the preservation of lands, sites, and structures that have historical or archaeological significance.

- **Manage Shorelines Wisely.** Protect, preserve, and enhance the Spokane River and Latah Creek, which are designated as shorelines of statewide significance.

~~2.3~~ Countywide Planning Policies ~~OVERVIEW~~

Original source: Chapter 2.3

The Growth Management Act (GMA) calls for coordinated planning efforts among jurisdictions within a county planning under GMA. In response to that requirement, the Spokane County Steering Committee of Elected Officials developed and adopted the Countywide Planning Policies (CWPPs) in December of 1994. Appendix A includes the full text of the CWPPs. The CWPPs address nine subject areas and provide a framework for subsequent development and adoption of comprehensive plans by all thirteen jurisdictions within Spokane County. The policies address the following topics:

- The designation of urban growth areas (UGAs)
- Joint planning within urban growth areas
- Promotion of contiguous and orderly development and provision of urban services
- Parks and open spaces
- Transportation
- Siting of capital facilities of a countywide or statewide nature
- Affordable housing
- Economic development
- Fiscal impacts

~~2.4 HORIZONS PROCESS OVERVIEW~~1.4 PLAN DEVELOPMENT PROCESS AND ADOPTION

Original source: Chapter 2.4

Spokane Horizons
Shared Directions For Tomorrow

Introduction

Spokane Horizons ~~is~~ was the name of the City of Spokane's citizen participation process to develop the city's 2001 ~~a new~~ comprehensive plan. It ~~is the city's planning process that is intended to~~ involved all segments of the community in shaping the city's future. Started in the spring of 1995, the Spokane Horizons process was developed to fulfill the city's commitment to active, effective citizen participation as well as the Growth Management Act's (GMA) mandate for early and continuous citizen participation.

From the beginning of its GMA planning, the city made a commitment to provide early and frequent opportunities for the citizens of Spokane to be involved in making decisions that affect the community. Through the Spokane Horizons process, ~~it was hoped that~~ the community ~~could~~ achieved consensus and charted a new course for Spokane's future. These aspirations are expressed in the following goals for this program:

Spokane Horizons Goals

- To stimulate broad citizen involvement in shaping the future of the community.
- To forge a new coalition of community-wide interests to broaden the investment within the community for planning Spokane's future.
- To build affective relationships among government, the community and neighborhoods, business and their constituents to empower citizens and provide a broader perspective on Spokane's future.
- To understand the public's expectations for growth management planning, including the content and products of the process.

Citywide Vision
Spokane will be a city of people living and working together where diverse interests, including neighborhoods, business, education, and government, build upon the community's past accomplishments and heritage to ensure and exceptional sense of community, a healthy environment, and a high quality of life.

Process Chronology

~~A chronological summary of the Spokane Horizons process follows. Additional details can be found in the supporting documents cited in the text.~~

All of this text has been moved to an Appendix.

☑ **~~March 1995~~**
~~Citizen Participation Forum~~

~~A citizen participation forum offers comments concerning the current state of citizen involvement and recommendations for how to motivate and involve people in community planning, producing "Key Principles for Public Participation."~~

~~Key Principles for Public Participation~~

- ~~Include "input-based outcomes" to build ownership and increase participation.~~
- ~~Ensure diversity and inclusiveness in the participation process.~~
- ~~With the government, in community/neighborhoods, businesses, and their constituents should work collaboratively to achieve community consensus and build effective relationships.~~
- ~~Communicate frequently and through a variety of techniques.~~
- ~~Recognize individual time limitations.~~
- ~~Focus on specific, direct-impact issues to generate interest and participation.~~
- ~~View Spokane Horizons as a positive opportunity for the Spokane community.~~

~~Supporting Documents~~

~~"Key Principles for Public Participation"~~
~~"Citizen Participation Forum Summary Report." Spokane Horizons Newsletter, April 14, 1995.~~

☑ **~~Spring to Summer 1995~~**
~~Identifying Plan Topics~~

~~Citizens are asked for community issues of importance and topics that should be included in the city's comprehensive plan. Ten plan topics are crafted. Four chapters address mandated GMA topics while others are included by local decision. The ten plan topics include the following:~~

~~Elements Mandated by GMA~~

- ~~Land Use~~
- ~~Capital Facilities and Utilities~~
- ~~Transportation~~
- ~~Housing~~

~~Elements Added by Local Decision~~

- ♦ Economic Development
- ♦ Urban Design and Historic Preservation
- ♦ Natural Environment
- ♦ Neighborhoods
- ♦ Social Health
- ♦ Leadership, Governance, and Citizenship

Supporting Documents

"Charting a New Course." Spokane Horizons Newsletter, July 1995
"Salmon swim upstream…" Survey.

☑ **Summer 1995**

Development of Spokane Horizons Executive Board

The Spokane Horizons Executive Board, whose members represent fourteen diverse sponsor organizations, is formed to design and implement the Spokane Horizons process. The organizations represent neighbor-hood, business, civic and local government interests and provide expertise or resources normally not available to the city.

Sponsoring Organizations

Chase Youth Commission
City of Spokane
Citizens League of Greater Spokane
Community Colleges of Spokane
League of Women Voters
Pacific Northwest Inlander
Spokane Area Chamber of Commerce
Spokane Neighborhoods
Spokane School District 81
Vision Spokane
AVISTA Utilities, formerly known as Washington Water Power
West Central, East Central, and North Central Community Centers

☑ **Fall 1995**

Beginning to Identify Visions and Values

Over 80,000 questionnaires entitled, "50,000 People Are Coming to Dinner . . .and They're Staying the Night!" are distributed throughout the community via city utility bill mailings, organizations and various meetings. The responses serve as the initial steps toward developing the city's visions and values. It asks the community two questions:

- ♦ What do you really love about Spokane? What should we be sure to keep, even as we grow?
- ♦ Think about 50,000 more people living in our city. What changes are you concerned about or looking forward to with this growth? How do you feel this growth will affect the things that you like and want to keep?

Supporting Documents

"50,000 People Are Coming to Dinner . . . and They're Staying the Night!" Brochure

☑ **March to April 1996**

Clarifying and Confirming Visions and Values

Seven sub-area meetings are held throughout the city followed by a citywide meeting on April 17. Through these meetings and the work of the City Plan Commission, a citywide vision is developed, followed by vision and values statements for each of the plan topics.

Supporting Documents

Spokane Horizons letter to participants, February 12, 1996
"Why Bother, Who Cares?" Meeting Flyer.

☑ **June 10, 1996**
Adoption of Visions and Values

The City Council unanimously adopts the visions and values as the basis for the comprehensive plan. Note: The adopted visions and values appear within their corresponding topic section in this document.

☑ **July 1996**
Ten Topic Work Groups Start Meeting

Ten citizen work groups start meeting to address the plan topics. The groups identify the predominant issues surrounding each topic and select three representatives to serve on the Core Committee, which shares ideas and provides coordination between topics.

☑ **October 1996**
APA/PAW Honor Award

On October 22, 1996, the city of Spokane receives an Honor Award from the American Planning Association and Planning Association of Washington for Spokane Horizons: Shared Directions.

☑ **March 10, 1997**
City Council Accepts Community Issues Report

The "Community Issues" report, containing lists of community issues to be addressed in subsequent planning phases, is accepted by the City Council.

Supporting Document

"Community Issues." Report, undated.

☑ **March to July 1997**
Ideas for Community Solutions

The Horizons topic work groups continue to formulate solutions to their identified issues. In July, City Council accepts the "Ideas for Community Solutions" document.

Supporting Document

"Ideas for Community Solutions." July 21, 1997.

☑ **July to August 1997**
Draft Goals Developed

The ten topic work groups produce the preliminary draft goals, which are approved in August by the Core Committee.

☑ **September 1997**
League of Women Voters Award

The League of Women Voters presented their 1997 Growth Management Award for Public Participation Programs to Spokane Horizons on September 18, 1997.

☑ **August-December 1997**
Draft Policies Developed; Growth Concepts Explored

Individual work groups develop draft policies addressing the approved goals. The city staff develops the first graphic representations of potential growth concepts that satisfy the draft goals and presents them to the Core Committee.

Supporting Document
"Draft Goals and Policies, Horizons' suggestions for The City of Spokane's Comprehensive Plan," November 24, 1997.

☑ **January-June 1998**
Formulation of Growth Strategies/Alternatives

The Current Patterns and Focused Growth strategies develop from the initial growth concepts. Outreach to the public for feedback on the strategies includes presentations to more than 90 civic organizations, the preparation of a video and a newspaper tabloid, which is inserted in an April edition of The Pacific Northwest Inlander and throughout downtown and city neighborhoods.

Supporting Documents
"Spokane Horizons Progress." Spokane Horizons Newsletter, April/May 1998.
"Two Strategies for Growth, Which Path to the Future," Newspaper Tabloid.

☑ **Fall 1998 and Spring 1999**
Operational Analysis of Growth Alternatives

Information packages fully detailing the three proposed growth alternatives area presented to service providers (both city and non-city agencies) for their evaluation. The second round addresses a larger geographic area than the first round.

☑ **Spring 1999**
Adjustments

Adjustments to the growth population and the refinement of land capacity and demand start.

☑ **Spring and Summer 1999**
Market Analysis of Focused Growth

Consultants complete reports on the market possibilities of the focused growth alternatives.

Supporting Documents
Focused Growth Alternatives: Mixed-Use Case Studies, March 1999
Focused Growth Alternatives: Summary of Stakeholder Interviews, July 1999
Focused Growth Alternatives: Summary Analysis Report, August 1999

☑ **Summer 1999**
Preparation of Integrated Plan

The development of an integrated Draft Comprehensive Plan/EIS document containing the three alternatives begins.

Supporting Documents
"Horizons' Choices to Hit City Streets" Spokane Horizons Newsletter, September 1999

☑ **Fall 1999**
Further Work on Integrated Draft Plan

Additional narrative work, including background and discussion sections, is added to the draft plan while editing and graphic layout procedures continue.

☑ **March 2000**
Spokane Horizons Executive Board Reconvened

The Spokane Horizons Board is reconvened and provides review of the citizen participation process.

☑ **Spring 2000**

Draft Comprehensive Plan/EIS Chapters Introduced

Draft Comprehensive Plan/EIS chapters are introduced to the City Plan Commission.

☑ **May-September 2000**

Draft Comprehensive Plan/EIS Released

The Draft Comprehensive Plan/EIS is released May 22, 2000 for a public comment period that ends on September 26. The document is available in print, on CD-ROM, and on the city's website. 14,000 copies are distributed of a summary magazine titled "Spokane Quest." Public education and outreach efforts include presentations to over 80 civic organizations, booths at nine community festivals, and a standing display in City Hall called the Comp Plan Lab. Feedback instruments include surveys, an email response address, an Open Mike Night, several Tell-Back sessions, and the City Plan Commission hearing on September 6, 2000.

Supporting Documents

Draft Comprehensive Plan and Draft Environmental Impact Statement
"Spokane Quest," Magazine
Public Participation Program Pamphlet

☑ **August 2000**

Fiscal Analysis of Growth Alternatives

Consults prepare a report analyzing the fiscal impacts of each of the three proposed growth alternatives, which is released for public review on August 30, 2000.

Supporting Documents

Fiscal Analysis for the Draft Comprehensive Plan/EIS, August 2000

☑ **October 2000**

APA/PAW Honor Award

On October 3, 2000, the City of Spokane receives an Honor Award from the American Planning Association and Planning Association of Washington for Draft Comprehensive Plan Community Involvement.

☑ **October 2000 – January 2001**

City Plan Commission Deliberations

The City Plan Commission deliberates on the Draft Comprehensive Plan/EIS and the three proposed growth alternatives. After consideration of the fiscal, environmental, operational, social and market analyses, and an extensive review of the public comment, the City Plan Commission confirms Centers and Corridors as the preferred growth alternative. Changes are made to policy language and the land use map to address the City Plan Commission's concerns and those raised through the public comment process. The City Plan Commission then recommends this changed version of the plan to the City Council for adoption.

Supporting Documents

135 letters of public comment received
Tell-Back report: "Perception of Comprehensive Plan Strategies"
Findings, Conclusions and Recommendation, dated January 17, 2001
City Plan Commission's Recommended Draft Comprehensive Plan (January 2001 version)

☑ **January – May 2001**

City Council Review

From January 18 to February 22, the City Plan Commission hold six study sessions with Planning staff to review the January 2001 Plan Commission's recommended version of the Draft Comprehensive Plan. The City Plan Commission proposes suggested changes to policy language and the land use map in order to address the concerns expressed by City Council members at these study sessions. Preliminary to the City Council hearings o the plan, the Plan Commission holds an open house on February 20 to show the public the February 13 version of the Comprehensive Plan/EIS that contains their recommendations together with the Council's changes to date.

The City Council holds seven weekly public hearings on the comprehensive plan from February 26 to April 9, 2001. The Final Environmental Impact Statement (FEIS) and final Capital Facilities Program (CFP) are released for public review on March 23. In response to the public comment, changes are made to comprehensive plan policies and the land use map during eleven joint City Council/City Plan Commission study sessions held between March 1 and May 10. All the changes that City Council made to the February 13 version of the Recommended Comprehensive Plan are compiled and released for ten days of public review on May 4. City Council hears public testimony on their proposed changes on May 7 and May 14. The City Council's first reading of the comprehensive plan adoption ordinance takes place on May 14. The City council hears final testimony, approves several last minute amendments to the plan text and map, and adopts the Comprehensive Plan by ordinance at the second reading on the ordinance on May 21, 2001.

Supporting Documents

"Process Meets Product" Spokane Horizons Newsletter, January 2001

234 letters of public comment received

City Plan Commission's Recommended Comprehensive Plan/FEIS (2/13/01 public release version)

FEIS and final CFP

City Council's Recommended Changes to the Plan Commission's Recommended Comprehensive Plan (released 5/4/01)

Comprehensive Plan Adoption Ordinance No. C32847

☑ **January-May 2001**

Draft Initial Development Regulations

Draft Initial Development Regulations are released for a 30-day public comment period that runs from January 29 to February 28. The City Plan Commission's hearing on the Draft IDRs is held February 21. The Plan Commission deliberates on the Draft Initial Development Regulations on May 9, and passes their recommendation on to the City Council. A revised version of the IDRs is posted to the City's website for public review on May 15. The City Council's first reading of the revised IDRs takes place on May 14. They are adopted by City Council at the second reading on May 21 with no additional public testimony.

Supporting Documents

Draft Initial Development Regulations, released on January 29, 2001

Initial Development Regulations Adoption Ordinance No. C32843

~~1.2 PLAN ADOPTION AND AMENDING THE PLAN~~

Plan Adoption

Original source: Chapter 1.2

The order of paragraphs has changed slightly from the original – this reordering is not shown in track changes unless the actual text was modified.

By City Charter, the City Plan Commission has the responsibility to make planning recommendations to the City Council for consideration for adoption. The Plan Commission has the duty to conduct the citizen planning processes that produce planning proposals, to review the results of these processes, and to formulate recommendations to the City Council based on this public involvement.

Adoption by the City Council is the ~~formation~~ formal step that is necessary to make the Comprehensive Plan an official city document. Under the rules of the GMA, the City Council's action to adopt the plan must be based on the "early and continuous citizen participation" required by the GMA. This provision adds ~~insurance~~ assurance that the plan represents the community's consensus about the city's growth and how that growth will promote citizens' quality of life interests.

The Comprehensive Plan is a dynamic product of the community's continually evolving needs and desires about its future. The plan is prepared by involved citizens, recommended by the City Plan Commission, and adopted by the City Council. By law, it can be revised no more than once a year. At some point in time, however, changes in planning laws or community needs may require the preparation of an entirely new plan. ~~This 2001 Comprehensive Plan is the result of a change in planning law when Washington adopted the Growth Management Act (GMA) in 1990. It likely will experience many years of annual revisions before another entirely new plan is necessary.~~

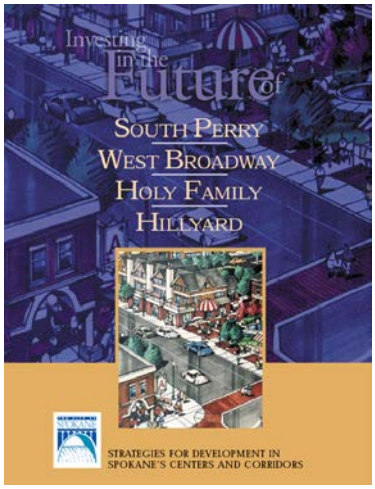
The remainder of Chapter 1.2 has been moved below. This change is not shown in tracked-changes for clarity purposes.

~~2.6~~1.5 OVERVIEW OF PLANNING EFFORTS

Original source: Chapter 2.6

In addition to annual amendments to the Comprehensive Plan and other long range planning efforts to ensure that adequate capital facilities are available in the future, the City has participated in additional planning efforts. The City has played both a lead and partnering role with many different groups and their planning efforts for the betterment of the community. Several of these efforts have been initiated and conducted by private groups with interests in certain specific areas of the City and surrounding areas. Examples of a few of these efforts include;

Pilot Centers and Corridors



Pilot Centers and Corridors: Four ~~pilot areas~~ Centers and Corridors from the City's 2001 Comprehensive Plan were chosen as pilot projects to help develop and test the process of conducting specific plans for targeted areas of the City. The South Perry, West Broadway, Holy Family and Hillyard Center and Corridor areas were the first ~~areas~~ to be closely examined after the passage of the 2001 Comprehensive Plan ~~in 2001~~. Stakeholder groups, facilitated by city staff, developed visions and ~~S~~strategies for future revitalization projects ~~were developed and implemented~~ to ~~either revitalize or~~ ensure that these areas continue~~d~~ to be economic vibrant areas where future growth ~~could~~ will continue to be focused ~~in the future~~. ~~These pilot plans amended the Comprehensive Plan as a part of their process.~~

~~Footnote: Brochure that summarized strategies.~~

Neighborhood Planning

This paragraph was modified to conform to current practice.

Following the pilot Centers and Corridors process~~es, and the creation of the Neighborhood Planning Guidebook,~~ several other targeted planning efforts were~~have been~~ conducted. The City facilitated stakeholder groups to plan for ~~O~~other Center and Corridors ~~areas that the City has partnered with include the~~ at the Grand District Center, Maxwell and Elm Employment Center, and Logan Neighborhood Center~~s~~. ~~The East Central neighborhood is currently in the process of creating a neighborhood plan.~~ Following those processes, several more neighborhoods have engaged in limited planning for their neighborhoods. These planning efforts continue.

Strategic Plans

~~Through the Comprehensive Plan, t~~The ~~C~~city would like to acknowledge several planning efforts that ~~have taken~~ took place just prior to and after adoption of the 2001 Comprehensive Plan. Acknowledgment means only that the City recognizes these efforts. The Davenport District, Great Spokane River Gorge, and U-District plans contain a significant body of work detailing existing conditions, opportunities, and an outline for many actions designed to enhance these areas of the City. As visionary documents, they will help guide growth and development in these areas in the future. The City has not committed resources for action or project implementation of these plans, and the plans at this time are not intended for adoption as official policy of the City of Spokane. No legislative action has been taken to adopt changes to the Spokane Municipal Code, the Official Zoning Map, or the text or maps of the Comprehensive Plan related to these planning efforts. Implementation of these plans may require amendments to the Comprehensive Plan in the future.

Davenport District Strategic Action Plan

This effort was started in late 2001. The Downtown Spokane Partnership spearheaded a Strategic Action Plan for the district following the momentum begun by the Downtown Plan. During this time the "Davenport District" was selected as the name for the area surrounding the Davenport Hotel from Stevens Street on the east to Madison Street on the west. This plan presents a ten-year vision and action plan to guide the development and evolution of the Davenport District. The plan lays out an agenda for a series of immediate and long-term action items to enable the District to realize its full potential as an exciting district filled with arts, cultural, entertainment and living opportunities. The Strategic Plan is intended to be a flexible development tool and a working document that will change and adapt as the Davenport District evolves.

Cover of the Davenport District Strategic Action Plan

The Great Spokane River Gorge Strategic Master Plan:

A non-profit group "Friends of the Falls", aided by an award of technical assistance from the National Parks Service's Rivers, Trails & Conservation Assistance Program, ~~has~~ spearheaded ~~an effort that has~~ the development of ~~developed~~ a strategic master plan for an area that has been named the Great Spokane River Gorge or "Great ~~George~~ Gorge Park." The area generally follows the Spokane River Gorge west of ~~River Front~~ Riverfront Park and includes parts of several neighborhoods. Some of the groups that ~~working~~ worked with Friends of the Falls in the process include Spokane Parks Department, Spokane Tribe Culture Office, Avista Corporation, Summit Properties (now Kendall Yards), West Central Neighborhood, Peaceful Valley Neighborhood, Downtown Spokane Partnership, Northwest Museum of Arts & Culture, and the Friends of the Centennial Trail.

Cover of "The Great Spokane River Gorge" strategic master plan.

U-District Strategic Master Plan

Starting in 2003 and continuing through 2004, the City participated in a community effort to develop a strategic master plan around the idea of a University District. As stated in the U-District plan "The University District is a bold vision and plan to attract a critical mass of top students, staff and faculty, cutting-edge researchers, and creative entrepreneurs – all of which are the catalysts for increased commercialization of technology, growth in our health care industry, and overall economic prosperity for the region. It builds upon and incorporates existing plans, activities and assets — leveraging them into a strong economic engine that lays the foundation for Spokane's growth in the next century. It is time to forge Spokane's new destiny." Since the completion of the master plan numerous site and topic specific plans have been developed to further

Cover of the U-District Strategic Plan

guide decision making and investment in the U-District. These efforts include a market analysis, housing study, and investment strategy. Copies of these documents can be found on the University District's website.

Central City Line Strategic Overlay Planning

Because this project is ongoing and may be completed prior to final adoption of the Comprehensive Plan Update, this paragraph may be modified in the future to reflect the most currently available information.

The Central City Line (CCL) is a proposal by the Spokane Transit Authority for a six-mile Bus Rapid Transit route connecting Browne's Addition to Spokane Community College by way of Downtown Spokane and the University District. The concept of the CCL has been in design by community partners for nearly 15 years. As part of ongoing planning for the CCL, the City of Spokane and Spokane Transit Authority are developing a Strategic Overlay Plan to identify transit-supported economic development opportunities and land use policy changes. The plan will examine a range of potential policy changes aimed at increasing ridership, maximizing economic opportunity, and helping to catalyze transit-supported development around the CCL. The process will give stakeholders and the public an opportunity to share their priorities and weigh in on these options. The plan will include recommendations for STA and City of Spokane actions to support CCL implementation and help increase the project's competitiveness for federal funding. The Strategic Overlay Plan process began in the summer of 2015, and is expected to be completed by summer 2016. The plan will include a review of existing plans and policies in the corridor, and will contain land use and policy recommendations (including economic development opportunities, parking and affordable housing) for key areas along the corridor.

West Plains Transportation Subarea Plan

The purpose of the West Plains Draft Transportation Subarea Plan was to coordinate the orderly provision of adequate transportation facilities to facilitate the anticipated and desired development in the area. The need for coordinated capital facility planning was identified shortly after annexations in the area by the Cities of Spokane and Airway Heights in 2012.

The West Plains has been the subject of a number of reports and studies over time. During the course of review of these studies and reports, meetings with stakeholders, and the Technical Advisory Committee for the Subarea Plan, it became evident that transportation presented the biggest opportunity for coordination and improvement, and with a focused vision for transportation, the communities could align their water and sewer improvements.

The process for developing the plan involved an intensive and rigorous public process. Over the course of more than a year the City of Spokane used stakeholder interviews, public workshops, and Technical Advisory Committee meetings to develop and refine the Plan.

To meet the outcomes and recommendations, the plan provided a number of recommended transportation improvements cost estimates.

1.3 IMPLEMENTATION - CARRYING OUT THE PLAN

A plan means nothing if it is not carried out, or *implemented*. The Comprehensive Plan, as a community-wide plan, is implemented by the combined efforts of individuals, businesses, neighborhoods, civic groups, and local government. Many of the plan's policies reflect this shared responsibility for community action.

This entire section has been moved to a new Chapter 2 – Implementation.

City government has the primary responsibility to implement the plan. The city's two main implementation activities are managing development by land use regulations and spending public funds on physical improvements. The relationship of these activities to the Comprehensive Plan is specified in the State Growth Management Act, which states that regulations shall be consistent with the Comprehensive Plan, and capital budgeting and spending shall be in conformance with the Comprehensive Plan.

Consistent Regulations

The city created regulations to ensure that development occurs consistent with our community's goals and objectives p. These include zoning and subdivision ordinances, environmental laws, building codes, historic preservation laws, and design review procedures.

Zoning

The regulations that most people are at least a little familiar with are in the zoning code. This code controls the way land can be used, meaning the type of activity and intensity of development. Zoning restricts where residences, stores, industry, and other land uses are located, along with urban building height, minimum lot size, and the amount of landscaping and parking that must be provided. Zoning can establish districts, such as single-family residential or light industrial, to keep land uses separated, but it also can set rules for combining many types of uses to create a "mixed-use" project or district.

The city's official zoning code is part of the Spokane Municipal Code, which includes all the local laws that citizens and their city government must follow. The zoning code consists of definitions, descriptions of zoning classifications and the uses allowed in each, dimensional standards for development, and maps that show how the zone classifications divide the entire city into land use districts. Since zoning is a device to implement the plan, its rules must be consistent with the plan. The decisions about land development are made when the plan is prepared or amended. The zoning code puts theses decisions into operation as enforceable rules.

Example of Zoning Consistency

The plan's policies and map designate a location for a neighborhood center that includes a mix of housing types and neighborhood business uses, developed in character with the surrounding single-family neighborhood. The zoning code map for the area shows the boundaries of the center and a zoning classification, such as "Neighborhood Center Mixed-Use," near its middle. The map also identifies districts for higher density housing adjoining the mixed-use district, and surrounding those, large single-family districts to preserve the existing neighborhood character. The zoning map districts and classifications follow the direction of the plan and, therefore, meet the rule for consistency.

Subdivision

The manner in which parcels of land are divided into smaller parcels, or platting, is specified in the subdivision ordinance. Subdivision provisions relate primarily to procedures for dividing land. These procedures include review by public agencies to insure that zoning standards (e.g., minimum lot size), street access, public facilities, and other urban service requirements are provided.

State subdivision law requires that local legislative bodies include written findings that "***appropriate provisions are made****. . .for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and other relevant facts, including sidewalks and other planning features*" as part of the decision for approving a plat. Appropriate provisions are made with a finding that those facilities specified in the plan will be available to serve the plat at the time of development.

Environmental Review

The State Environmental Policy Act (SEPA) ensures that environmental values are considered during decision-making by state and local agencies. SEPA gives agencies the tools to allow them to consider environmental information, including mitigation measures, before making a decision on a proposed plan or project. SEPA also includes provisions to involve the public, tribes, and interested agencies in most review processes prior to a final decision.

The environmental review process in SEPA works with other regulations to provide a comprehensive review of a proposal. Combining the review processes of SEPA and other laws reduces duplication and delay by combining study needs, combining comment periods and public notices, and allowing agencies, applicants, and the public to consider all aspects of a proposal at the same time. SEPA also gives agencies authority to condition or deny a proposal based on the agency's adopted SEPA policies and environmental impacts identified during SEPA review.

Design Review and Design Guidelines

One of the biggest concerns of the community is how the pieces of our urban environment fit together. Design Review addresses the "fit" and compatibility of a development within the context of its surrounding environment both visually and in terms of how well a project will function as a neighbor. Review of projects is based on urban design guidelines included as policies and illustrations within the Comprehensive Plan and can cover height, bulk, architectural elements, landscape, signing, lighting, points of access, and many other details of building and site development.

Design guidelines are a primary tool in plan implementation to einsure that proposals are compatible in character with adjacent development. Guidelines are adopted as descriptions, photos, or illustrations of desired character, and they have the effect of public policy. Building materials, architectural details, site features, and relationship to the street and adjacent properties are common specification in design guidelines. Design guidelines can serve as education and information for developers and the general public and can be recommended to a decision-making authority by an advisory committee in regards to a specific project. They also can be required as a condition of a particular development by a decision-maker, such as the Hearing Examiner.

Building Codes

Building codes help insure that development is safe and not a threat to public and personal health. These rules are applied when a property owner or tenant applies to the city for a building permit to gain approval to develop property including structures. During the permitting process, other codes, such as zoning and SEPA, are checked for compliance.

Some of the most important areas involving consistency with the plan include the Americans with Disability Act requirements, rules for historic preservation, and the creation of live/work spaces. Community interests such as these, as stated in the Comprehensive Plan, must be reflected through local administration of the Building Code.

Historic Preservation

The Comprehensive Plan recognizes the high value citizens place on historic resources in Spokane. Policies express public concern regarding their preservation and how to manage changes to these resources as they are impacted by new development. Historic properties can range from individual

downtown commercial buildings to neighborhood clusters of historically significant homes. Historic properties could also be buildings or structures owned or used by the City of Spokane.

A number of implementation tools are already in place. The Spokane Register of Historic Places lists significant properties over 50 years old by owner consent. Following designation, through a contract with the owner, properties are subject to historic design review in reference to federal rehabilitation standards, known as the Secretary of the Interior's Standards for Rehabilitation.

To encourage compliance, incentives are available for privately owned historic properties. Those incentives include the Federal Investment Tax Credit, which provides an income tax reduction, local Special Valuation, which reduces property tax, local Building Code Relief, which allows for deviation from building code requirements, and the option of the donation of a Facade Easement, which provides a one-time Federal Income Tax deduction.

A database of information of identified and potentially historic properties is also available and can be used as a planning tool by local government, by developers, and by elected officials to make informed decisions about actions that could affect historic resources.

Conforming Capital Budget and Spending

As communities grow, new schools, parks, libraries, streets, water and sewer lines, and similar urban facilities are needed to serve the expanding population. The Capital Facilities Program (CFP) is an official city document that lists all of the facility needs identified by each service provider for the next twenty years, including those required to support future population growth. The City Council adopts the program as the official outline of long-range spending on public improvements.

Transportation, water, wastewater, solid waste, fire, and parks facilities are planned in greater detail in their respective Capital Improvement Programs (CIPs) and summarized in the first six-year projects in the 20-year CFP. The CIP lists the specific physical improvements, specifies a time for construction, and identifies the anticipated source of funds to pay for the project. In addition to ongoing needs for repair and maintenance, these lists of capital facilities include the immediate improvements necessary to support growth, in conformance with the Comprehensive Plan.

Capital Facilities and Concurrency

The CFP and CIPs outline the city's capital budgets and include projects needed to realize the proposals in the plan. The GMA's Concurrency rule ensures that those public facilities and services necessary to support development are adequate to serve the development without decreasing current service levels below locally established minimum standards, and available when the service demands of development occur. The basis for this rule is two-fold: new growth should pay its way without placing additional financial burden on existing citizens or future generations, and growth should not reduce the quality or types of urban services that current residents enjoy.

Concurrency is pursued at the planning level and ensured at the project review level. During planning, the six-year capital improvement programs reflect City Council resolve to pursue funding for projects to meet the demands of new growth. The concurrency management system tracks current and future capital projects against land use trends and funding availability. At the project review level, developments generating new service demands can only be approved if adequate public facilities and services are available to meet the needs of the development.

1.7~~1.4~~ MONITORING AND EVALUATION

Original source: Chapter 1.4

Throughout the life of the Comprehensive Plan, a monitoring and evaluation process is conducted periodically to assess the effectiveness of the goals and policies~~,~~ and to identify ideas that may need to be added or modified in order to produce a result consistent with the Growth Management Act (GMA), the community's original visions and values, and the changing needs and priorities of the community.

Many sources of information ~~are~~ may be used during this process. Building permit records indicate whether or not new development activity is concentrating in designated centers, as described in the Comprehensive Plan. Departmental budgets, Six-Year Capital Improvement Plans, and findings from the Concurrency Management System demonstrate whether adequate resources exist and if they are being allocated at a level sufficient to accomplish the plan's objectives. Quality of life factors are tracked over time as they relate to the goals and policies of the Comprehensive Plan – such as environmental quality, physical health, economic vitality, social conditions, housing availability, and other factors. Also, public participation in the annual Comprehensive Plan amendment process helps to identify unmet needs or new issues.

Quality of life was added to the previous paragraph.

~~However, it is not enough to know whether or not the goals of the Comprehensive Plan are being met. We need to know that quality of life is actually improving because the goals are being met. Quality of life factors are tracked over time through Indicators and Benchmarks that cover the full range of topics represented by the chapters in the Comprehensive Plan. Indicators are measurements that can be compared regularly to assess trends and changing conditions. Benchmarks are reference points or standards for comparison that mark progress along the path toward a desired outcome.~~

~~Measurements address issues such as environmental quality, physical health, economic vitality, social conditions, housing availability, civic engagement and other factors which are key to general community well being. The information needed is gleaned from close partnerships with agencies and community organizations such as the Health Improvement Partnership (Spokane Community Report Card), who already collect this data for similar community building purposes. In the end, this process should help to coordinate and improve programming and operations for all entities in Spokane whose purpose it is to improve the quality of life in Spokane.~~

~~THE AHWAHNEE Principles: A Way to Assess the Comprehensive Plan~~

This was removed for streamlining purposes.

~~The growth strategy in this Comprehensive Plan came purely from the desires and needs expressed by Spokane citizens who participated in the process. It is not mere coincidence, however, that these new directions for healthy community growth also seem somewhat familiar in their presentation. Before World War II and the ensuing sub-urbanization of the post-war, "modern" era, communities developed in ways greatly similar to those promoted in this Comprehensive Plan. A group of nationally recognized urbanists who are active in planning, designing and building healthier urban places has adopted a set of principles to state attributes of growth and development that contribute to high quality of life. These principles are included here as a way to look at Spokane's Comprehensive Plan in the context of the recommendations of these professionals and scholars.~~

~~**Preamble:** Existing patterns of urban and suburban development seriously impair our quality of life. The symptoms are: more congestion and air pollution resulting from our increased dependence on automobiles, the loss of precious open space, the need for costly improvements to roads and public services, the inequitable distribution of economic resources, and the loss of a sense of community.~~

By drawing upon the best from the past and the present, we can plan communities that will more successfully serve the needs of those who live and work within them. Such planning should adhere to certain fundamental principles.

Community Principles:

- All planning should be in the form of complete and integrated communities containing housing, shops, work places, schools, parks and civic facilities essential to the daily life of the residents.
- Community size should be designed so that housing, jobs, daily needs and other activities are within easy walking distance of each other.
- As many activities as possible should be located within easy walking distance of transit stops.
- A community should contain a diversity of housing types to enable citizens from a wide range of economic levels and age groups to live within its boundaries.
- Businesses within the community should provide a range of job types for the community's residents.
- The location and character of the community should be consistent with a larger transit network.
- The community should have a center focus that combines commercial, civic, cultural and recreational uses.
- The community should contain an ample supply of specialized open space in the form of squares, greens and parks whose frequent use is encouraged through placement and design.
- Public spaces should be designed to encourage the attention and presence of people at all hours of the day and night.
- Each community or cluster of communities should have a well-defined edge, such as agricultural greenbelts or wildlife corridors, permanently protected from development.
- Streets, pedestrian paths and bicycle paths should contribute to a system of fully connected and interesting routes to all destinations. Their design should encourage pedestrian and bicycle use by being small and spatially defined by buildings, trees and lighting; and by discouraging high-speed traffic.
- Wherever possible, the natural terrain, drainage and vegetation of the community should be preserved with superior examples contained within parks or greenbelts.
- The community design should help conserve resources and minimize waste.
- Communities should provide for the efficient use of water through the use of natural drainage, drought tolerant landscaping and recycling.
- The street orientation, the placement of buildings and the use of shading should contribute to the energy efficiency of the community.

Regional Principles:

- The regional land-use planning structure should be integrated within a larger transportation network built around transit rather than freeways.
- Regions should be bounded by and provide a continuous system of greenbelt/wildlife corridors to be determined by natural conditions.
- Regional institutions and services (government, stadiums, museums, etc.) should be located in the urban core.
- Materials and methods of construction should be specific to the region, exhibiting a continuity of history and culture and compatibility with the climate to encourage the development of local character and community identity.

Implementation Principles:

- The general plan should be updated to incorporate the above principles.

- ~~Rather than allowing developer-initiated, piecemeal development, local governments should take charge of the planning process. General plans should designate where new growth, infill or redevelopment will be allowed to occur.~~
- ~~Prior to any development, a specific plan should be prepared based on these planning principles.~~

1.8 AMENDMENTS

~~This~~ The 2001 Comprehensive Plan ~~is~~ was the result of a change in planning law when Washington adopted the Growth Management Act (GMA) in 1990. The GMA also requires the City to review and, if needed, update the Comprehensive Plan at certain time intervals.

Original Source: Chapter 1.2

~~2.5 COMPREHENSIVE PLAN UPDATE OF 2006 OVERVIEW~~

Previous Amendments and Periodic Updates

~~Reason for 2006 Update: For the City's Comprehensive Plan to be effective, it must continue to be evaluated and evolve. When new and updated information that examines trends or patterns of growth and development is available, these are used to help evaluate if the Plan is achieving the goals of the community contained in the Plan. The 2006 update, in addition to annual amendments to the plan, ensure that the Plan is consistent with changes to State and Federal laws and the desires of the community. The Washington State GMA also requires the City to review and, if needed, update the Comprehensive Plan at certain time intervals. The end of 2006 is the first of the State required review periods.~~ The Comprehensive Plan was updated in 2006 to meet the changing needs of the community and to fulfill GMA requirements for comprehensive plan updates. The second update occurred in 2017, again to reflect changing community values and to comply with updated state law. The 2006 and 2017 updates, in addition to annual amendments to the plan, ensure that the Plan is consistent with changes to State and Federal laws and the desires of the community. The end of 2006 was the first of the State-required review periods. The city completed the second update in 2017, as required by the State. A complete list of amendments and periodic updates is included in Appendix B. The Comprehensive Plan ~~It likely~~ will likely experience many years of annual revisions before another entirely new plan is necessary.

Original Source: Chapter 2.5

This text has been updated to be current.

Starting from the last sentence of this paragraph, the original source is Chapter 1.2.

~~Amending the Plan~~New Amendments

The City of Spokane ~~is committed to~~ conduct~~sing~~ an annual process to consider amendments to the ~~c~~Comprehensive ~~p~~Plan. The GMA specifies that amendments to a comprehensive plan cannot be made more frequently than once per year (with some exceptions). The purpose for this is two-fold: it gives the plan stability over time, avoiding spontaneous changes in response to development pressures, and it groups all proposed amendments into a common process for consideration, providing the opportunity to examine their collective effects on the plan. Proposed amendments to the Comprehensive Plan follow a prescribed process in the city's municipal code.

~~The amendment process begins with a public notice to announce that applications to amend the plan can be made to the city until a specified cut-off date. The City Plan Commission then schedules workshops of public hearings to review completed applications. The Plan Commission makes a recommendation on each proposed revision and forwards its recommendation as a resolution and has the discretion to hold an additional public hearing. Those proposals that are approved by the City Council are official amendments to the Comprehensive Plan. Applicants can appeal the City Council's decision only to the Superior Court.~~

This text was removed because it was too specific and simply repeats what is already in the Spokane Municipal Code (17G.020).

~~In addition to public comment, the amendment process will be guided by information gleaned from several different sources, including the Buildable Lands Inventory, Concurrency Management System, and Quality of Life Indicators and Benchmarks.~~

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June 8, 2015

Plan Commission Packet

Shaping Spokane

2017 Update to the
Comprehensive Plan

Part III

Chapter 1 – Introduction
FORMATTED

1.1 PURPOSE OF THE COMPREHENSIVE PLAN

What is Comprehensive Planning

Planning is a part of everyone's life. We make plans for our careers, vacations, families, and housing. Planning is how we increase the likelihood that these things will occur in ways we desire. Without plans, we face never-ending uncertainty about future events. Consequently, we end up reacting to one situation after another.

For similar reasons, communities make plans. In large urban areas where the landscape is highly complex and constantly changing, community plans shape the future in desirable ways. The city is a place where people have many varied needs, a place where citizens live, work, shop, and play. It is, therefore, a place where material goods, police and fire protection, sewers, water, transportation, recreation, and many other services must be provided.

Comprehensive Plan is the name given to identify the community's long-range plan for growth. It is comprehensive because it provides guidance for all aspects of the city's growth and development over

a long period, typically twenty-years – an entire generation. The plan is a set of goals, policies, maps, illustrations, and implementation strategies that state how the city should grow physically, socially, and economically.

The Comprehensive Plan provides the overall scheme of city development – the major land uses, transportation systems, parks, recreation, and open spaces, and centers of shopping and employment. This plan establishes the framework for all other planning activities and documents. By law, decision-makers and managers in city government must follow the direction of the Comprehensive Plan.

The City of Spokane's Comprehensive Plan

When the state enacted the Growth Management Act (GMA) in 1990, it changed the purposes of comprehensive plans prepared under the GMA rules. Requirements to plan for housing and private utilities were added to the existing mandates to address land use, transportation, and capital facilities. In 2003, an additional requirement was added to include planning for shorelines. Chapter 14, Shorelines, was added in 2010. The GMA authorizes the inclusion of additional plan topics of specific local interest; the city chose to include economic development, social health, and five other planning subjects in its plan.

The Comprehensive Plan provides the following direction to city-elected officials and staff:

- Locations where growth should occur.
- Quantities and types of housing to shelter existing and future population.

- Transportation, public improvements, and public services that are desired.
- Ways to help create a healthy economic environment.
- Actions to protect the natural environment.
- Development patterns to provide cost-effective delivery of public services.
- Timing and conditions for annexation.

GMA includes provisions to ensure that the city follows these Comprehensive Plan directives. First, the city must regulate land use and development consistent with the plan; the zoning code, subdivision code, environmental ordinances, and building code must follow the plan's intent. Second, the city must make capital budget decisions and capital project investments in conformance with the plan. These two GMA rules give the new Comprehensive Plan a much higher level of importance in guiding the city's growth and development than previous editions of the plan.

1.2 LOCAL CONTEXT

Over the decades, Spokane has been shaped by its notable beginning. Capturing the attention of fur traders, miners, missionaries and those with the "westward-ho" spirit, Spokane soon found its place on the map. Prior to 1800, Spokane was a Native American seasonal encampment located near the falls of the Spokane River.

It was not long, however, before James N. Glover, the "Father of Spokane," recognized the beauty and potential of the unscathed Spokane area. He acquired land rights from the first settlers who had arrived

in 1871 and eventually established a store where he and his wife worked and resided. Glover grew exceedingly involved in the young town and was elected mayor in 1883.

In 1881, a short time before Glover assumed office, the town was incorporated as "Spokan Falls;" an 1883 amendment changed the spelling to "Spokane Falls." A few years later in 1891, "Spokane" became the official city name when "Falls" was dropped. The city limits at that time extended north to Garland Avenue, south to 29th Avenue, east to Regal Street and west to "H" Street, to encompass a total of 20 square miles.

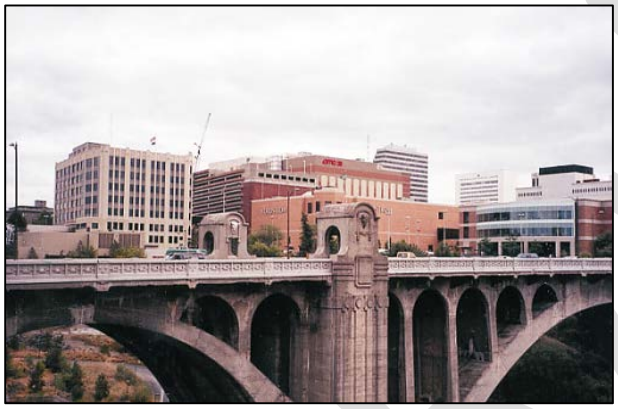
In the midst of name changes and growth, Spokane suffered its share of tragic events. In August of 1889, a great fire destroyed large portions of the city with losses totaling more than $6 million. The need to rebuild the city served as the ideal opportunity to replace the old wood buildings with those made of stone and brick. Noted for their architectural and civic status, these buildings are still treasured by Spokane's citizens.

In 1911, Spokane citizens approved a one million dollar park bond, which was used to implement the city's first plan-- a park plan created by the world-famous landscape design firm, Olmsted Brothers. Implementation of the Olmsted plan increased Spokane's park size from 173 acres to 1,934 acres and firmly established Spokane's park system as one of the community's enduring assets.

Spokane grew rapidly in its early years, from a population of a mere 350 in 1880 to over 100,000 in 1910. To ensure that Spokane's beauty would be protected during the rapid growth period, the "City Beautiful" committee was formed as part of a nationwide planning movement. The committee devoted itself to making Spokane a desirable place to live by enhancing its natural and built environment, both of which were highly prized by Spokane's early settlers who proudly used these assets to "boost" their young community and attract growing numbers of people to it. One of the results of Spokane's City Beautiful movement was the creation of the Park Board in 1907.

After 1910, the city's growth slowed and even declined between 1960 and 1990. Fifty years following the mighty fire, the threat and formidable presence of war in the 1940s knocked at Spokane's door and made it a center for wartime activity. Over the next thirty years, Spokane continued to develop both commercially and industrially. A considerable number of housing developments further shaped Spokane's neighborhoods, gradually spreading into the unincorporated area of Spokane County where most of the new development began to take place.

In 1974, Spokane hosted EXPO '74, the World's Fair. An immediate success, the fair drew huge crowds throughout the summer. The intrigued crowds thronged through the EXPO site, which had only recently been cleared of the railroad lines that had once crowded the river front site. Today, the Great Northern Depot tower remains as a feature of the park and serves as a reminder of the integral role the railroad played in shaping Spokane.



Growth of the City

When the city was incorporated as "Spokan Falls" in 1881, it covered an area roughly the same size as the present Central Business District. Spokane's population in 1900 was over 36,000, nearly double that of a decade earlier. There were 300 business and industrial enterprises, 108 saloons, 56 churches, 2,500 telephones, and 42 miles of street railways. By 1920, the city's population had grown to over 104,000. Between 1920 and 1990, population grew at a much slower rate than earlier years. The population was 171,300 in 1980 and 177,165 in 1990, a 3 percent increase over this ten-year period. During the years between 1990 and 1995, the city's population growth was more rapid, increasing to 188,800, an expansion of more than 1 percent per year. Since 1995, the population has remained relatively stable, decreasing to an estimated 188,300 in 1998. The Census reported the City of Spokane's population for the year 2010 at 208,916 and the Washington State Office of Financial Management has forecast the population for the year 2017 to be 215,839. The recent population numbers show an increase of 4,184 people over the five year period from 2010 to 2015.

Geological History

Spokane has been patterned over time by a succession of geological episodes. More than 16 million years ago, vast lava flows forged the area, creating a great bedrock plain that extended in multiple directions. During the ice age approximately 12,000 years ago, lobes of large glaciers traveled from the north, barricaded a large river basin in western Montana, and formed a gigantic lake near modern-day Missoula. The lake was 7,600 square kilometers in area and approximately 600 meters deep.

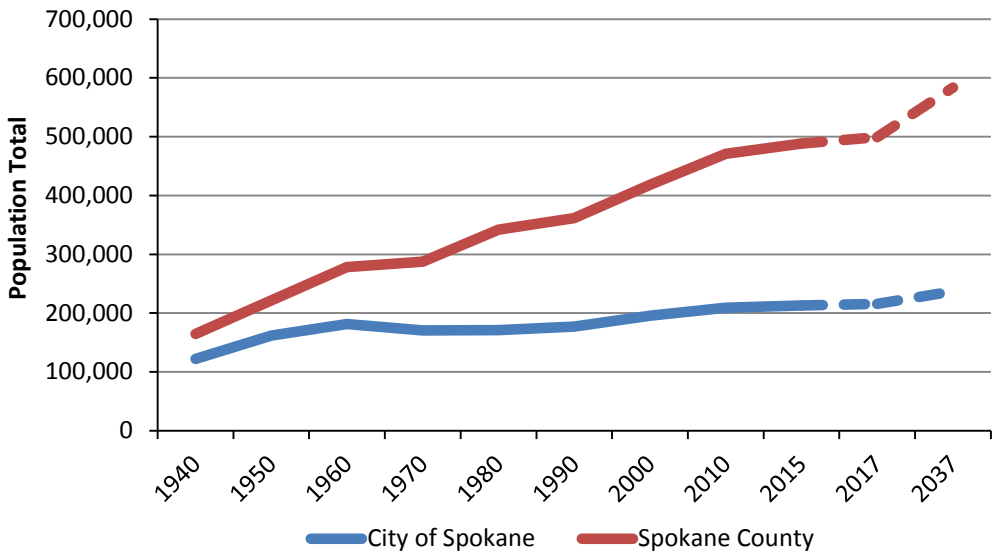
The glaciers eventually began to retreat, which caused the ice dam to fracture, spilling huge walls of water 150 meters in height through Spokane and the surrounding region. Such events occurred more than a dozen times during the ice age, carving out deep canyons and leaving small remnants of the original plain. The receding flood waters left mass deposits of sand and gravel in the bottom of canyons. These flat areas made ideal locations for settlement, and formed a large ground water aquifer. The aquifer is now identified as the Spokane Valley - Rathdrum Prairie Aquifer and serves as Spokane's water supply.

The aquifer carries between 1,325,000 and 2,460,000 cubic meters of water each day and provides domestic water supply to most of the Spokane urbanized area. Additionally, the aquifer exchanges significant amounts of water with the Spokane River. Most of the urbanized area is located in the Spokane River valley, enclosed north and south by steep hillsides. Prevailing winds and frequent winter temperature inversions tend to impound stagnant air and accumulated airborne pollutants near the ground's surface. Spokane is frequently in jeopardy of violating this country's strict air quality standards, a situation that has severe consequences for our municipality and its citizens. Automobile travel remains a significant producer of airborne pollutants, which attests to the comprehensive plan's devotion toward exploring other means of transportation and ways in which to reduce automobile usage.

Population

The growth alternatives presented in the draft comprehensive plan are based on projected growth for Spokane County for the next twenty years as decided by elected officials from all jurisdictions in the county.

Figure 1 – Population Growth in the City and County of Spokane



Climate and Region

Located 18 miles west of the Idaho border and 110 miles south of the Canadian border, Spokane enjoys each of the four seasons. Spokane typically averages 16.25 inches of precipitation each year. Additionally, the area receives approximately 45 inches of snow and ice annually. The winds remain calm at an average of 8 mph.

Figure 2 – Average Monthly Temperatures for Spokane

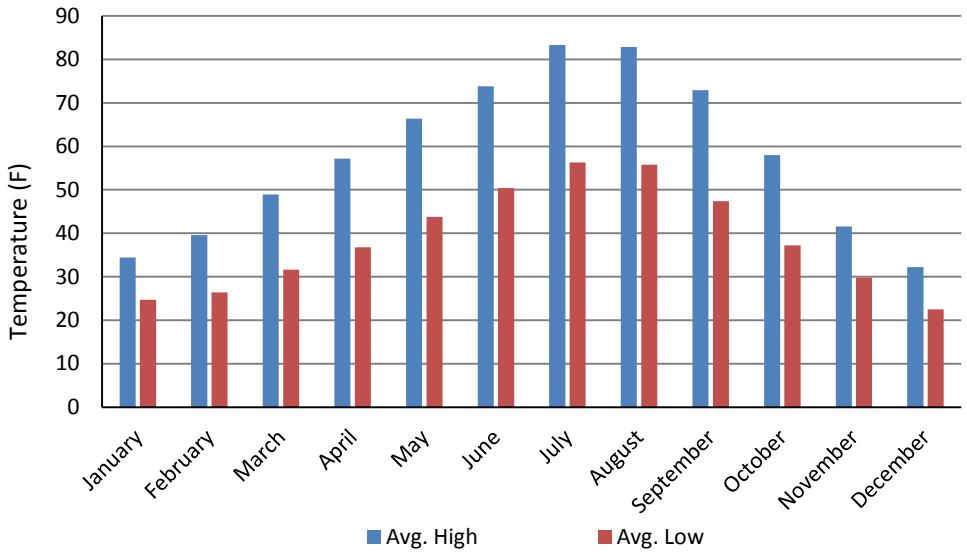
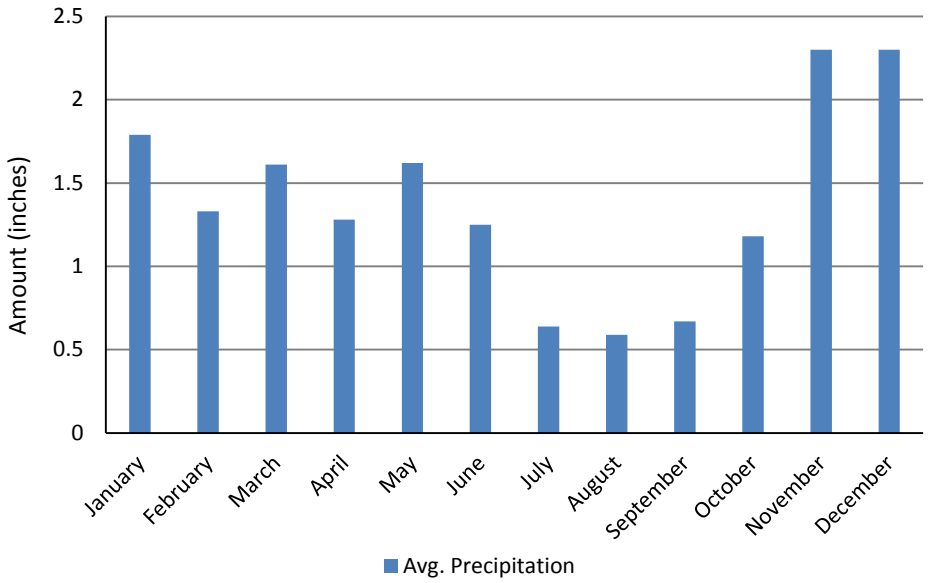


Figure 2 – Average Monthly Precipitation for Spokane



1.3 STATE REQUIREMENTS AND REGIONAL PLANNING

The Growth Management Act (GMA) was adopted in 1990 by the State Legislature in response to rapid population growth in the Puget Sound region on the western side of the state. A few years later, Spokane County also experienced unprecedented growth and was required to become part of growth management. The GMA goals are not listed in order of priority and are used exclusively for the purpose of guiding the development of comprehensive plans and development regulations. The following fourteen GMA goals are what the City of Spokane must achieve, and are consistent with the community's vision for its future.

- **Urban Growth**. Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.
- **Reduce Sprawl**. Reduce the inappropriate conversion of undeveloped land into sprawling, low density development.
- **Transportation**. Encourage efficient multimodal transportation systems that are based on regional priorities and coordinated with county and city comprehensive plans.
- **Housing**. Encourage the availability of affordable housing to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.
- **Economic Development**. Encourage economic development throughout the state that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons, promote the retention and expansion of existing businesses and recruitment of new businesses, recognize regional differences impacting economic development opportunities, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.
- **Property Rights**. Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.
- **Permits**. Applications for both state and local government permits should be processed in a timely and fair manner to ensure predictability.
- **Natural Resource Industries**. Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries. Encourage the conservation of productive forest and productive agricultural lands, and discourage incompatible uses.
- **Open Space and Recreation**. Retain open space, enhance recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities.

- **Environment**. Protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water.
- **Citizen Participation and Coordination**. Encourage the involvement of citizens in the planning process and ensure the coordination between communities and jurisdictions to reconcile conflicts.
- **Public Facilities and Services**. Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.
- **Historic Preservation**. Identify and encourage the preservation of lands, sites, and structures that have historical or archaeological significance.
- **Manage Shorelines Wisely**. Protect, preserve, and enhance the Spokane River and Latah Creek, which are designated as shorelines of statewide significance.

Countywide Planning Policies

The Growth Management Act (GMA) calls for coordinated planning efforts among jurisdictions within a county planning under GMA. In response to that requirement, the Spokane County Steering Committee of Elected Officials developed and adopted the Countywide Planning Policies (CWPPs) in December of 1994. Appendix A includes the full text of the CWPPs. The CWPPs address nine subject areas and provide a framework for subsequent development and adoption of comprehensive plans by all thirteen jurisdictions within Spokane County. The policies address the following topics:

- The designation of urban growth areas (UGAs)
- Joint planning within urban growth areas
- Promotion of contiguous and orderly development and provision of urban services
- Parks and open spaces
- Transportation
- Siting of capital facilities of a countywide or statewide nature
- Affordable housing
- Economic development
- Fiscal impacts

1.4 PLAN DEVELOPMENT PROCESS AND ADOPTION

Introduction

Spokane Horizons was the name of the City of Spokane's citizen participation process to develop the city's 2001 comprehensive plan. It involved all segments of the community in shaping the city's future. Started in the spring of 1995, the Spokane Horizons process was developed to fulfill the city's commitment to active, effective citizen participation as well as the Growth Management Act's (GMA) mandate for early and continuous citizen participation.

From the beginning of its GMA planning, the city made a commitment to provide early and frequent opportunities for the citizens of Spokane to be involved in making decisions that affect the community. Through the Spokane Horizons process, the community achieved consensus and charted a new course for Spokane's future. These aspirations are expressed in the following goals for this program:

Spokane Horizons Goals

- To stimulate broad citizen involvement in shaping the future of the community.
- To forge a new coalition of community-wide interests to broaden the investment within the community for planning Spokane's future.
- To build affective relationships among government, the community and neighborhoods, business and their constituents to empower citizens and provide a broader perspective on Spokane's future.
- To understand the public's expectations for growth management planning, including the content and products of the process.

Citywide Vision

Spokane will be a city of people living and working together where diverse interests, including neighborhoods, business, education, and government, build upon the community's past accomplishments and heritage to ensure and exceptional sense of community, a healthy environment, and a high quality of life.

Plan Adoption

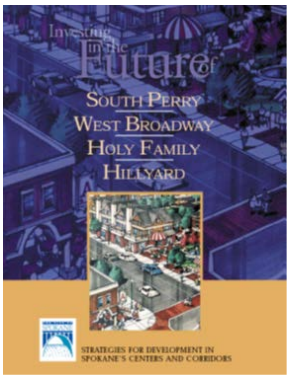
By City Charter, the City Plan Commission has the responsibility to make planning recommendations to the City Council for consideration for adoption. The Plan Commission has the duty to conduct the citizen planning processes that produce planning proposals, to review the results of these processes, and to formulate recommendations to the City Council based on this public involvement.

Adoption by the City Council is the formal step that is necessary to make the Comprehensive Plan an official city document. Under the rules of the GMA, the City Council's action to adopt the plan must be based on the "early and continuous citizen participation" required by the GMA. This provision adds assurance that the plan represents the community's consensus about the city's growth and how that growth will promote citizens' quality of life interests.

The Comprehensive Plan is a dynamic product of the community's continually evolving needs and desires about its future. The plan is prepared by involved citizens, recommended by the City Plan Commission, and adopted by the City Council. By law, it can be revised no more than once a year. At some point in time, however, changes in planning laws or community needs may require the preparation of an entirely new plan.

1.5 OVERVIEW OF PLANNING EFFORTS

In addition to annual amendments to the Comprehensive Plan and other long range planning efforts to ensure that adequate capital facilities are available in the future, the City has participated in additional planning efforts. The City has played both a lead and partnering role with many different groups and their planning efforts for the betterment of the community. Several of these efforts have been initiated and conducted by private groups with interests in certain specific areas of the City and surrounding areas. Examples of a few of these efforts include;



Pilot Centers and Corridors

Pilot Centers and Corridors: Four Centers and Corridors from the City's 2001 Comprehensive Plan were chosen as pilot projects to help develop and test the process of conducting specific plans for targeted areas of the City. The South Perry, West Broadway, Holy Family and Hillyard Center and Corridor areas were the first to be closely examined after the passage of the 2001 Comprehensive Plan. Stakeholder groups, facilitated by city staff, developed visions and strategies for future revitalization projects to ensure that these areas continue to be economic vibrant areas where future growth will continue to be focused.

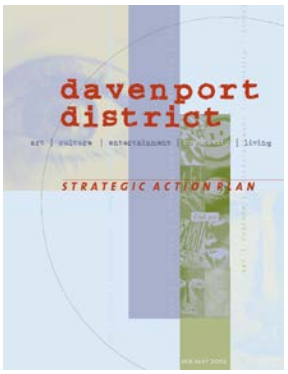
Neighborhood Planning

Following the pilot Centers and Corridors processes several other targeted planning efforts were conducted. The City facilitated stakeholder groups to plan for other Center and Corridors at the Grand District Center, Maxwell and Elm Employment Center, and Logan Neighborhood Center. Following those processes, several more neighborhoods have engaged in limited planning for their neighborhoods. These planning efforts continue.

Strategic Plans

The city would like to acknowledge several planning efforts that took place just prior to and after adoption of the 2001 Comprehensive Plan. Acknowledgment means only that the City recognizes these efforts. The Davenport District, Great Spokane River Gorge, and U-District plans contain a significant body of work detailing existing conditions, opportunities, and an outline for many actions designed to enhance these areas of the City. As visionary documents, they will help guide growth and development in these areas in the future. The City has not committed resources for action or project implementation of these plans, and the plans at this time are not intended for adoption as official policy of the City of Spokane. No legislative action has been taken to adopt changes to the Spokane Municipal Code, the Official Zoning Map, or the text or maps of the Comprehensive Plan related to these planning efforts. Implementation of these plans may require amendments to the Comprehensive Plan in the future.

Davenport District Strategic Action Plan



This effort was started in late 2001. The Downtown Spokane Partnership spearheaded a Strategic Action Plan for the district following the momentum begun by the Downtown Plan. During this time the "Davenport District" was selected as the name for the area surrounding the Davenport Hotel from Stevens Street on the east to Madison Street on the west. This plan presents a ten-year vision and action plan to guide the development and evolution of the Davenport District. The plan lays out an agenda for a series of immediate and long-term action items to enable the District to realize its full potential as an exciting district filled with arts, cultural, entertainment and living opportunities. The Strategic Plan is intended to be a flexible development tool and a working document that will change and adapt as the Davenport District evolves.

The Great Spokane River Gorge Strategic Master Plan:

A non-profit group "Friends of the Falls", aided by an award of technical assistance from the National Parks Service's Rivers, Trails & Conservation Assistance Program, spearheaded the development of a strategic master plan for an area that has been named the Great Spokane River Gorge or "Great Gorge Park." The area generally follows the Spokane River Gorge west of Riverfront Park and includes parts of several neighborhoods. Some of the groups that worked with Friends of the Falls in the process include Spokane Parks Department, Spokane Tribe Culture Office, Avista Corporation, Summit Properties (now Kendall Yards), West Central Neighborhood, Peaceful Valley Neighborhood, Downtown Spokane Partnership, Northwest Museum of Arts & Culture, and the Friends of the Centennial Trail.

U-District Strategic Master Plan

Starting in 2003 and continuing through 2004, the City participated in a community effort to develop a strategic master plan around the idea of a University District. As stated in the U-District plan "The University District is a bold vision and plan to attract a critical mass of top students, staff and faculty, cutting-edge researchers, and creative entrepreneurs – all of which are the catalysts for increased commercialization of technology, growth in our health care industry, and overall economic prosperity for the region. It builds upon and incorporates existing plans, activities and assets – leveraging them into a strong economic engine that lays the foundation for Spokane's growth in the next century. It is time to forge Spokane's new destiny." Since the completion of the master plan numerous site and topic specific plans have been developed to further guide decision making and investment in the U-District. These efforts include a market analysis, housing study, and investment strategy. Copies of these documents can be found on the University District's website.

Central City Line Strategic Overlay Planning

The Central City Line (CCL) is a proposal by the Spokane Transit Authority for a six-mile Bus Rapid Transit route connecting Browne's Addition to Spokane Community College by way of Downtown Spokane and the University District. The concept of the CCL has been in design by community partners for nearly 15 years. As part of ongoing planning for the CCL, the City of Spokane and Spokane Transit Authority are developing a Strategic Overlay Plan to identify transit-supported economic development opportunities and land use policy changes. The plan will examine a range of potential policy changes aimed at increasing ridership, maximizing economic opportunity, and helping to catalyze transit-supported development around the CCL. The process will give stakeholders and the public an opportunity to share their priorities and weigh in on these options. The plan will include recommendations for STA and City of Spokane actions to support CCL implementation and help increase the project's competitiveness for federal funding. The Strategic Overlay Plan process began in the summer of 2015, and is expected to be completed by summer 2016. The plan will include a review of existing plans and policies in the corridor, and will contain land use and policy recommendations (including economic development opportunities, parking and affordable housing) for key areas along the corridor.

West Plains Transportation Subarea Plan

The purpose of the West Plains Draft Transportation Subarea Plan was to coordinate the orderly provision of adequate transportation facilities to facilitate the anticipated and desired development in the area. The need for coordinated capital facility planning was identified shortly after annexations in the area by the Cities of Spokane and Airway Heights in 2012.

The West Plains has been the subject of a number of reports and studies over time. During the course of review of these studies and reports, meetings with stakeholders, and the Technical Advisory Committee for the Subarea Plan, it became evident that transportation presented the biggest opportunity for coordination and improvement, and with a focused vision for transportation, the communities could align their water and sewer improvements.

The process for developing the plan involved an intensive and rigorous public process. Over the course of more than a year the City of Spokane used stakeholder interviews, public workshops, and Technical

Advisory Committee meetings to develop and refine the Plan. To meet the outcomes and recommendations, the plan provided a number of recommended transportation improvements cost estimates.

1.7 MONITORING AND EVALUATION

Throughout the life of the Comprehensive Plan, a monitoring and evaluation process is conducted periodically to assess the effectiveness of the goals and policies and to identify ideas that may need to be added or modified in order to produce a result consistent with the Growth Management Act (GMA), the community's original visions and values, and the changing needs and priorities of the community.

Many sources of information may be used during this process. Building permit records indicate whether or not new development activity is concentrating in designated centers, as described in the Comprehensive Plan. Departmental budgets, Six-Year Capital Improvement Plans, and findings from the Concurrency Management System demonstrate whether adequate resources exist and if they are being allocated at a level sufficient to accomplish the plan's objectives. Quality of life factors are tracked over time as they relate to the goals and policies of the Comprehensive Plan – such as environmental quality, physical health, economic vitality, social conditions, housing availability, and other factors. Also, public participation in the annual Comprehensive Plan amendment process helps to identify unmet needs or new issues.

1.8 AMENDMENTS

The 2001 Comprehensive Plan was the result of a change in planning law when Washington adopted the Growth Management Act (GMA) in 1990. The GMA also requires the City to review and, if needed, update the Comprehensive Plan at certain time intervals.

Previous Amendments and Periodic Updates

The Comprehensive Plan was updated in 2006 to meet the changing needs of the community and to fulfill GMA requirements for comprehensive plan updates. The second update occurred in 2017, again to reflect changing community values and to comply with updated state law. The 2006 and 2017 updates, in addition to annual amendments to the plan, ensure that the Plan is consistent with changes to State and Federal laws and the desires of the community. The end of 2006 was the first of the State-required review periods. The city completed the second update in 2017, as required by the State. A complete list of amendments and periodic updates is included in Appendix B. The Comprehensive Plan will likely experience many years of annual revisions before another entirely new plan is necessary.

New Amendments

The City of Spokane conducts an annual process to consider amendments to the Comprehensive Plan. The GMA specifies that amendments to a comprehensive plan cannot be made more frequently than once per year (with some exceptions). The purpose for this is two-fold: it gives the plan stability over time, avoiding spontaneous changes in response to development pressures, and it groups all proposed amendments into a common process for consideration, providing the opportunity to examine their collective effects on the plan. Proposed amendments to the Comprehensive Plan follow a prescribed process in the city's municipal code.

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June 8, 2015

Plan Commission Packet

Shaping Spokane

2017 Update to the
Comprehensive Plan

Part IV

Chapter 3 – Land Use

TRACKED CHANGES

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The Chapter Contents have not been updated. They will be updated with the correct subsections and page numbers at the end of the approval process.

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3.1 INTRODUCTION

~~Growth of the City~~

~~When the city was incorporated as "Spokan Falls" in 1881, it covered an area roughly the same size as the present Central Business District. Spokane's population in 1900 was over 36,000, nearly double that of a decade earlier. There were 300 business and industrial enterprises, 108 saloons, 56 churches, 2,500 telephones, and 42 miles of street railways. By 1920, the city's population had grown to over 104,000. Between 1920 and 1990, population grew at a much slower rate than earlier years. The population was 171,300 in 1980 and 177,165 in 1990, a 3 percent increase over this ten-year period. During the years between 1990 and 1995, the city's population growth was more rapid, increasing to 188,800, an expansion of more than 1 percent per year. Since 1995, the population has remained relatively stable, decreasing to an estimated 188,300 in 1998. The Census reported the City of Spokane's population for the year 2000 at 195,629 and the Washington State Office of Financial Management has forecast the population for the year 2006 to be 201,600. The recent population numbers show an increase of 13,300 people or over a 6 percent increase over the eight year period from 1998 to 2006.~~

The topics addressed here were moved to Chapter 1.

~~The original town consisted of a bustling core area surrounded by compact, single-family neighborhoods. This development pattern continued until after World War II when increased mobility provided by the automobile resulted in a more suburban form of development. In the last 20 years, most new commercial development has occurred outside the downtown area in the form of large commercial centers and strips along arterial streets. New neighborhoods are typically characterized by low densities and few street connections. Many of the large apartment complexes built during this time are isolated from the rest of the city.~~

Planning History

Spokane has a long history of planning. The first subdivision regulations were adopted in 1906, and the first zoning ordinance passed in 1929. The City Plan Commission was established by a City Charter amendment in 1917 to, "investigate and make recommendations to the City Council on all matters pertaining to the living conditions of the city, and betterment of facilities, for doing public and private business therein, the elimination of slums, the correction of unhealthful housing conditions to further its growth along consistent, comprehensive and permanent plans."

From these early beginnings, planning in Spokane has continued to grow in significance and usefulness. The first land use plan, a report including maps and policies, was adopted in 1968 as the official guide for development in Spokane. A new land use plan was adopted in 1983. Between 1982 and 1995, neighborhood plans were adopted for fifteen city neighborhoods, encompassing approximately 70 percent of the city's geography. In 2001 the first GMA compliant Comprehensive Plan was adopted by the City Council which superseded those previous plans. In addition to annual amendments, that plan went

through a full update in 2006. All of these plans, including portions of the neighborhood plans mentioned above, continue to serve as foundation materials for the City's Comprehensive Plan.

These paragraphs were modified by staff to reflect recent Planning accomplishments.

In addition to these efforts, there have been many significant planning accomplishments ~~over the last thirty plus years~~ since the adoption of the 2001 Comprehensive Plan. ~~Among these are the adoption and implementation of~~ They include the ~~a~~Arterial ~~s~~Street ~~plan~~ Map Update, the ~~p~~Parks and ~~o~~Open ~~s~~Spaces ~~p~~Plan Update, the ~~downtown plan~~ Fast Forward Spokane Downtown Plan Update, the 2015 Pedestrian Master Plan, and the ~~s~~Shoreline ~~m~~Master ~~p~~Plan. ~~All of these planning documents are important because they provide official public policy that guides the growth and development of the city. The outcome of these planning efforts has been positive in many ways. For instance, neighborhood planning has encouraged citizen involvement at the most basic level, directly influencing what occurs in individual neighborhoods. Shoreline planning and regulations have resulted in the creation of Riverfront Park and other projects that have greatly improved the Spokane River. The downtown plan has been devised to again strengthen the livelihood of downtown for future generations through a strategic, coordinated community effort.~~

~~The Washington State Growth Management Act (GMA) requires the City of Spokane to prepare a comprehensive plan, which includes land use, housing, capital facilities, utilities, and transportation elements. This chapter contains the land use element. It includes goals, policies, and descriptions of land use types that will guide the development of land in the City of Spokane.~~

This paragraph was removed by the Focus Group because it is redundant with the Introduction chapter.

3.2 GMA GOAL AND REQUIREMENTS AND COUNTYWIDE PLANNING POLICIES

For all chapters, the GMA Goal and Requirements and Countywide Planning Policies have been moved to an appendix.

GMA Land Use Planning Goals (RCW 36.70A.020)

The Washington State Growth Management Act (GMA) includes 13 goals, which were adopted to guide the development and adoption of comprehensive plans and development regulations. Most, if not all, of the GMA goals pertain to the land use element. Land use policies and implementing regulations influence transportation, housing, economic development, property rights, permits, natural resource industries, open space and recreation, environment, citizen participation and coordination, public facilities and services, and historic preservation. While all of these goals are important, the two goals that are most directly related to the land use element state:

- Urban growth. "Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner."
- Reduce sprawl. "Reduce the inappropriate conversion of undeveloped land into sprawling, low density development."

GMA Requirements for Land Use Planning (RCW 36.70A.070)

Land use is one of the mandatory elements of the Comprehensive Plan required pursuant to the GMA. As prescribed by the GMA, the land use chapter:

- Designates the proposed general distribution, general location, and extent of the uses of land, where appropriate, for agriculture, timber production, housing, commerce, industry, recreation, open spaces, general aviation airports, public utilities, public facilities, and other land uses.
- Includes population densities, building intensities, and estimates of future population growth.
- Provides for protection of the quality and quantity of ground water used for public water supplies.
- Considers utilizing urban planning approaches that promote physical activity.
- Reviews drainage, flooding, and stormwater runoff in the area and nearby jurisdictions and provides guidance for corrective actions to mitigate or cleanse those discharges that pollute waters of the state.

Countywide Planning Policies

The Countywide Planning Policies (CWPPs) were adopted by the Spokane Board of County Commissioners in 1994. There is not a separate chapter in the CWPPs that addresses the topic of land use. However, there are many policies that are required to be addressed in each jurisdiction's comprehensive plan land use element.

A key policy that advances the GMA goals that are cited above states: "Each jurisdiction shall plan for growth within Urban Growth Areas (UGAs) which uses land efficiently, adds certainty to capital facilities planning, and allows timely and coordinated extension of urban governmental services, public facilities and utilities for new development."

A common theme of the CWPPs is the relationship between land use and most other comprehensive plan topics. For example, policies call for consistency between the land use plan and the regional transportation system. Opportunities are to be provided for developments along corridors that support public transportation services. Master plans of major transportation facilities, such as airports, state highways, railroads, and major freight terminals, are to be included to ensure that they are reasonably accommodated and compatible with surrounding land uses. Policies also require that the land use element consider the intensity of development in the urban growth area and assure that the provision of public facilities and services is adequate to support that intensity. Another topic that is to be addressed in the land use element is the protection of neighborhood character. Policies are to be included to prevent neighborhoods from becoming segmented, fragmented, or degraded by growth.

~~For the full text of the Countywide Planning Policies, refer to the Countywide Planning Policies and Environmental Analysis for Spokane County document, adopted December 22, 1994, last amended December 14, 2004 by Resolution No. 96-1075.~~

3.~~3~~2 VISION AND VALUES

Spokane ~~Horizons~~ volunteers working to develop the 2001 Comprehensive Plan identified important themes in relation to Spokane's current and future growth. A series of visions and values was crafted for each element of the Comprehensive Plan that describes specific performance objectives. From the Visions and Values document, adopted in 1996 by the City Council, the Comprehensive Plan's goals and policies were generated.

Land use is defined as the general location of various uses of land, population density, and building intensities.

All references to the "Horizons" process were deleted throughout the chapter, given the length of time that has elapsed since that process occurred – reducing the name recognition. The Comprehensive Plan now references the efforts of volunteers, including those that helped with "Horizons."

The Visions and Values of the "Horizons" process remain virtually untouched.

Vision

"Growth will be managed to allow a mix of land uses that fit, support, and enhance Spokane's neighborhoods, protect the environment, and sustain the downtown area and broaden the economic base of the community."

Values

"The things that are important to Spokane's future include:

- Acquiring and preserving the natural areas inside and outside the city.
- Controlling urban sprawl in order to protect outlying rural areas.
- Developing and maintaining convenient access and opportunities for shopping, services, and employment.
- Protecting the character of single-family neighborhoods.
- Guaranteeing a variety of densities that support a mix of land uses.
- Utilizing current residential lots before developing raw land."

3.~~4~~3 GOALS AND POLICIES

Goals and policies provide ~~specificity~~ direction for planning and decision-making. Overall, they indicate desired directions, accomplishments, or aims in relation to the growth and development of Spokane. The land use goals and policies establish a framework for future growth and development of the city.

Much of the future growth will occur within concentrated areas in neighborhood centers, district centers, employment centers and corridors designated on the land use plan map. While this growth occurs in centers and corridors, established single-family residential neighborhoods will remain largely unchanged.

The centers and corridors contain a mix of uses, including higher density housing centered around or above retail and commercial establishments, office space and public and semi-public activities (parks, government and schools). In addition to these uses, areas designated as employment centers emphasize a strong employment component such as major offices or light industrial uses. Street~~s~~ patterns within the centers and surrounding neighborhoods enable residents to walk or bicycle for their daily service needs and to access each center's transit stop. Higher density housing within and around the centers supports business in the center and allows for enhanced transit service between centers, along corridors and to the downtown area. Center designations on the land use plan map may change to reflect neighborhood planning decisions.

Other important directives of the land use goals and policies include:

- Limiting commercial and higher density development outside centers and corridors to support growth and development of centers and corridors.
- Directing new higher density housing to centers and corridors and restricting this type of development in single-family areas.
- Using design guidelines to ensure that commercial buildings and higher density housing are compatible with existing neighborhood character in and around centers and corridors.

LU 1 CITYWIDE LAND USE

Goal: Offer a harmonious blend of opportunities for living, working, recreation, education, shopping, and cultural activities by protecting natural amenities, providing coordinated, efficient, and cost effective public facilities and utility services, carefully managing both residential and non-residential development and design, and proactively reinforcing downtown Spokane's role as ~~the~~ a vibrant urban center.

Policies

LU 1.1 Neighborhoods

Utilize the neighborhood concept as a unit of design for planning housing, transportation, services, and amenities.

Discussion: Neighborhoods generally should have identifiable physical boundaries, such as principal arterial streets or other major natural or built features. ~~Ideally, they should have a geographical area of approximately one square mile and a population of around 3,000 to 8,000 people.~~ Many neighborhoods have a neighborhood center that is designated on the land use plan map. The neighborhood center, containing a mix of uses, is the most intensive activity area of the neighborhood. It includes higher density housing mixed with neighborhood-serving retail uses, transit stops, office space, and public or semi-public activities, such as parks, government buildings, and schools.

A variety of compatible housing types are allowed in a neighborhood. The housing assortment should include higher density residences developed in the form of small scale apartments, townhouses, duplexes, and rental units that are accessory to single-family homes, as well as detached single-family homes.

A coordinated system of open space, nature space, parks, and trails should be furnished with a neighborhood park within walking distance or a short transit ride of all residences. A readily accessible elementary school should be available for neighborhood children. Neighborhood streets should be narrow and tree-lined with pedestrian buffer strips (planting strips) and sidewalks. They should be generally laid out in a grid pattern that allows easy access within the neighborhood. Alleys are used to provide access to garages and the rear part of lots. Pedestrian amenities like bus shelters, benches, and fountains should be available at transit stops.

LU 1.2 Districts

Identify districts as the framework for providing secondary schools, larger park and recreation facilities, and more varied shopping facilities.

Discussion: Districts generally are composed of logical and contiguous groupings of several neighborhoods ~~having a population of 30,000 to 60,000 people~~. Within a district, the size and scale of schools, parks, and shopping facilities are larger because they serve a larger portion of the city. For example, within a district, there is usually a centrally located high school, one or two well-located middle schools, and one or more well-located community parks.

The core area of the district, known as the district center, is usually located at the intersection of arterial streets. District centers offer a wide range of retail and service activities including general merchandising, small specialty shops, personal and professional services, offices, food, and entertainment. They should also include plazas, green space, and a civic green or park to provide a focal point for the center. Urban design guidelines of the Comprehensive Plan or a neighborhood plan are used to guide architectural and site design to promote compatible mixed land uses. Housing density should decrease as the distance from the district center increases.

LU 1.3 Single-Family Residential Areas

Protect the character of single-family residential neighborhoods by focusing higher intensity land uses in designated centers and corridors.

Discussion: The city's residential neighborhoods are one of its most valuable assets. They are worthy of protection from the intrusion of incompatible land uses. Centers and corridors provide opportunities for complementary types of development and a greater diversity of residential densities. Complementary types of development may include places for neighborhood residents to work, shop, eat, and recreate. Development of these uses in a manner that avoids negative impacts to surroundings is essential. Creative mechanisms, including design standards, must be implemented to address these impacts so that potential conflicts are avoided.

LU 1.4 Higher Density Residential Uses

Direct new higher density residential uses to centers and corridors designated on the land use plan map.

Discussion: Higher density housing of various types is the critical component of a center. Without substantially increasing population in a center's immediate vicinity, there is insufficient market demand for goods and services at a level to sustain neighborhood-scale businesses. Higher density residential uses in centers range from multi-story condominiums and apartments

in the middle to small-lot homes at the edge. Other possible housing types include townhouses, garden apartments, and housing over retail space.

To ensure that the market for higher density residential use is directed to centers, future higher density housing generally is limited in other areas. The infill of Residential 15+ and Residential 15-30 residential designations located outside centers are confined to the boundaries of existing multi-family residential designations where the existing use of land is predominantly higher density residential.

LU 1.5 Office Uses

Direct new office uses to centers and corridors designated on the land use plan map.

Discussion: Office use of various types is an important component of a center. Offices provide necessary services and employment opportunities for residents of a center and the surrounding neighborhood. Office use in centers may be in multi-story structures in the core area of the center and transition to low-rise structures at the edge.

To ensure that the market for office use is directed to centers, future office use is generally limited in other areas. The Office designations located outside centers are generally confined to the boundaries of existing office designations. Office use within these boundaries is allowed outside of a center.

The Office designation is also located where it continues an existing office development trend and serves as a transitional land use between higher intensity commercial uses on one side of a principal arterial street and a lower density residential area on the opposite side of the street. Arterial frontages that are predominantly developed with single-family residences should not be disrupted with office use. For example, office use is encouraged in areas designated Office along the south side of Francis Avenue between Cannon Street and Market Street to a depth of not more than approximately 140 feet from Francis Avenue.

The Focus Group felt that perhaps this language should be in the SMC and not included in policy language in the Comprehensive Plan. This topic can be discussed as part of the Implementation discussion later in the process.

Drive-through facilities associated with offices such as drive-through banks should be allowed only along a principal arterial street subject to size limitations and design guidelines. Ingress and egress for office use should be from the arterial street. Uses such as freestanding sit-down restaurants or retail are appropriate only in the office designation located in higher intensity office areas around downtown Spokane ~~in the North Bank and Medical Districts shown in the Downtown Plan~~.

Reference to these features was removed because they are not shown on the Downtown Plan.

Residential uses are permitted in the form of single-family homes on individual lots, upper-floor apartments above offices, or other higher density residential uses.

LU 1.6 Neighborhood Retail Use

Direct new neighborhood retail use to neighborhood centers designated on the land use plan map.

Discussion: To ensure that neighborhood retail use is attracted to centers, future neighborhood retail development is directed to the centers. Neighborhood retail areas located outside centers are confined to the boundaries of the neighborhood retail designations.

The neighborhood retail designation recognizes the existence of small neighborhood-serving businesses in locations that are not larger than two acres and that lie outside of designated centers. These locations are usually found along arterial streets, typically at the intersection of two

arterials. In neighborhoods that are not served by a center, existing neighborhood businesses provide nearby residents access to goods and services.

No new neighborhood retail locations should be designated outside of a center. Further, business expansion at existing locations should be contained within the boundaries of the existing designation. Business infill within these boundaries is allowed

Businesses that are neighborhood-serving and pedestrian-oriented are encouraged in neighborhood retail locations. Buildings should be oriented to the street and provide convenient and easily identifiable sidewalk entries to encourage pedestrian access. Parking lots should not dominate the frontage and should be located behind or on the side of buildings. Drive-through facilities, including gas stations and similar auto-oriented uses, tend to provide services to people who live outside the surrounding neighborhood and should be allowed only along principal arterials and be subject to size limitations and design guidelines.

Residential uses are permitted in these areas. Residences may be in the form of single-family homes on individual lots, upper-floor apartments above business establishments, or other higher density residential uses.

LU 1.7 Neighborhood Mini-Centers

Create a neighborhood mini-center wherever an existing neighborhood retail area is larger than two acres.

Discussion: The neighborhood mini-center designation recognizes the existence of small neighborhood-serving businesses in locations that are two to five acres in size that lie outside centers and corridors designated on the land use plan map. However, s~~S~~ome designated neighborhood mini-centers are over five acres in size because they are based on pre-existing zoning designations. Similar to neighborhood retail, the neighborhood mini-center designation consists of small, freestanding businesses usually sited at the intersection of or along arterial streets. Another characteristic of this designation is the greatly restricted potential for redevelopment of the surrounding area to support a full neighborhood center. Consequently, the mini-center designation limits mixed-use development to the boundaries of the existing mini-center designation.

Mini-center locations are encouraged to become small, mixed-use centers with higher density residential use as a major component. Residential use adds market demand for neighborhood business and enables enhanced transit service to these locations. Shared-use parking arrangements are encouraged to increase the development intensity of the site for both residential and commercial uses.

This designation allows the same uses as the neighborhood retail designation. No new drive-through facilities, including gas stations and similar auto-oriented uses, should be allowed except along principal arterial streets where they should be subject to size limitations and design guidelines. Buildings should be oriented to the street to encourage walking by providing easy pedestrian connections. Parking lots should not dominate the frontage and should be located behind or on the side of buildings.

New mini-center locations may be established through a neighborhood planning process. They should be separated by at least one-mile from other neighborhood serving business areas and should not exceed five acres in size. To provide convenient accessibility from the surrounding neighborhood, new mini-centers should be located at the intersection of arterial streets.

~~Mini-centers established at the time of adoption of the comprehensive plan should be evaluated during any subsequent neighborhood planning phase. The evaluation will consider the~~

The current Neighborhood Planning process doesn't guarantee or require that this will happen.

~~appropriateness of the mini-center designation. The ability of the mini-center to serve the surrounding neighborhood and the adequacy of public services and facilities in the area to support the mini-center should be considered.~~

LU 1.8 General Commercial Uses

Contain general commercial areas within the boundaries occupied by existing business designations and within the boundaries of designated centers and corridors.

Discussion: General commercial areas provide locations for a wide range of commercial uses. Typical development in these areas includes freestanding business sites and larger grouped businesses (shopping centers). Commercial uses that are auto-oriented and include outdoor sales and warehousing are also allowed in this designation. Land designated for general commercial use is usually located at the intersection of or in strips along principal arterial streets. In many areas such as along Northwest Boulevard, this designation is located near residential neighborhoods. To address conflicts that may occur in these areas, zoning categories should be implemented that limit the range of uses, and site development standards should be adopted to minimize detrimental impacts on the residential area. Existing commercial strips should be contained within their current boundaries with no further extension along arterial streets allowed.

Recognizing existing investments by both the City of Spokane and private parties, and given deference to existing land use patterns, an exception to the containment policy may be allowed by means of a comprehensive plan amendment to expand an existing commercial designation, (Neighborhood Retail, Neighborhood Mini-Center, or General Commercial) at the intersection of two principal arterial streets or onto properties which are not designated for residential use at a signalized intersection of at least one principal arterial street which as of September 2, 2003, has traffic at volumes greater than 20,000 vehicular trips a day. Expansion of the commercial designation under this exception shall be limited to property immediately adjacent to the arterial street and the subject intersection and may not extend more than 250~~'~~ feet from the center of the intersection unless a single lot, immediately adjacent to the subject intersection and in existence at the time this comprehensive plan was initially adopted, extends beyond 250~~'~~ feet from the center of the intersection. In this case the commercial designation may extend the length of that lot but in no event should it extend further than 500~~'~~ feet or have an area greater than ~~3~~ three acres.

~~[per comprehensive plan text amendment, Ord. C-33287, effective 11-8-03]~~

If a commercial designation (Neighborhood Retail, Neighborhood Mini-Center, or General Commercial) exists at the intersection of two principal arterials, a zone change to allow the commercial use to be extended to the next street that runs parallel to the principal arterial street may be allowed. If there is not a street that runs parallel to the principal arterial, the maximum depth of commercial development extending from the arterial street shall not exceed 250 feet.

Areas designated general commercial within centers and corridors are encouraged to be developed in accordance with the policies for centers and corridors. Through a neighborhood planning process for the center, these general commercial areas will be designated in a land use category that is appropriate in the context of a center and to meet the needs of the neighborhood.

Residential uses are permitted in these areas. Residences may be in the form of single-family homes on individual lots, upper-floor apartments above business establishments, or other higher density residential uses.

LU 1.9 Downtown

~~Recognize the direct relationship between citywide land use planning and the present and future vitality of downtown Spokane.~~ *Develop city wide plans and strategies that are designed to ensure a viable, economically strong downtown area.*

The Focus Group modified this policy to strengthen the language and provide greater emphasis on the importance of downtown.

Discussion: ~~Plans and strategies should be adopted that are designed to ensure a viable, economically strong downtown area. Downtown Spokane should be a thriving neighborhood with a diversity of activities and a mix of uses; it should be alive night and day. The mix of uses must include residential (high, medium, and low-income), office, entertainment, and retail. To encourage residential use, a desirable living environment needs to be created. Downtown Spokane should be developed as a unique neighborhood with its own vision and plan with all stakeholders contributing.~~ Downtown Spokane, designated as the regional center, is a top community priority. Its wellbeing influences the entire region via employment, revenue generation, and transit. It should be a thriving regional center with a diversity of activities and a mix of uses so that it is alive and vibrant night and day. The mix of uses must include residential (high, medium and low-income), office, entertainment, retail and parking. It should be developed as a unique collection of businesses, neighborhoods and open spaces with a vision and a plan to which all stakeholders contribute. Major land use changes within the city should be evaluated to identify potential impacts on Downtown.

LU 1.10 Industry

Provide a variety of industrial locations and site sizes for a variety of light and heavy industrial development and safeguard them from competing land uses.

Discussion: Planned industrial locations should be free from critical areas, not subject to conflicting adjacent land uses, readily accessible to adequate transportation, utility, and service systems, and convenient to the labor force.

Commercial and office uses have historically been permitted in most areas that are designated for industrial use. Continuation of this practice may lead to the displacement of the vital industrial lands needed for the economic vitality of the city. The industrial lands inventory in the city and the urban growth area should be evaluated to determine which industrial lands should be preserved for exclusive industrial use and which areas should continue to allow commercial use.

In most cases, residential use is not appropriate in the industrial designation because of off-site impacts generated by industrial uses and the lack of residential amenities in these areas. However, river-oriented residential use is allowed in areas along the Spokane River where residents can take advantage of the river amenity. Residential uses should be carefully designed to be compatible with industrial uses. This compatibility may be maintained by using slope to other means or separate uses, and through buffers, landscaping, setbacks, fencing or other appropriate measures. The intent is to avoid conflicts between residential and industrial uses permitted in these areas.

LU 1.11 Agriculture

Designate areas for agriculture lands that are suited for long-term agricultural production.

Discussion: The agricultural designation is applied to agricultural lands of local importance in the Urban Growth Area. These areas have historically been farmed, contain highly productive agricultural soils (at least SCS Class II soils or designated prime agriculture lands as defined by the Natural Resource Conservation Service (NRCS) United States Department of Agriculture), and have large enough parcel sizes for productive farming. These areas have been determined in consultation with soil scientists from the National Resource Conservation Service. They are

expected to remain agriculture for at least the next twenty years. Uses planned for agricultural areas include: farming, green house farming, single-family residence, and minor structures used for sales of agricultural products produced on the premises. Caretakers' quarters associated with the agricultural activity may be permitted as an accessory use when a single-family residence is located on the parcel.

Uses adjacent to designated agricultural lands, both inside and outside the city, should be compatible with farm uses. This compatibility may be maintained by limiting uses or density, by using slope or other means to separate uses, and through buffers, setbacks, fencing or other appropriate measures. Another method of lessening conflicts between uses is to give notice to nearby properties that agricultural operations will take place nearby. The Growth Management Act requires that local governments include a notice on subdivisions, development permits and building permits within 5~~3~~00 feet of an agricultural area that incompatible uses may occur on nearby land. A third way of reducing conflicts between uses is a right to farm law. This type of law gives farmers some protection against nuisance lawsuits when conducting traditional agricultural activities. While these laws are common in counties, they are uncommon in cities. Spokane should study whether such a law could work successfully within the city.

This change was made to comply with recent changes to State law (RCW 36.70A.060.b).

To protect and preserve agricultural designated land, clustering of residential building sites shall be required as part of the subdivision approval process. Through the planned unit development (PUD) process, land in the Agriculture designation may be developed at a density of up to 10 units per acre. Clustering the allowable units is required so that structures located on agricultural designated parcels are situated in a manner that preserves as much land as possible for the agricultural operation.

A transfer of development rights program or purchase of development rights program ~~needs~~ should~~to~~ be developed to encourage the preservation of agricultural lands inside the urban growth area. ~~A transfer of development rights program allows a property owner to use or sell the development rights to increase the development intensity on properties included within designated receiving areas as defined in the Spokane Municipal Code.~~

This sentence was deleted because no TDR program has been implemented at the City.

LU 1.12 Public Facilities and Services

Ensure that public facilities and services systems are adequate to accommodate proposed development before permitting development to occur.

Discussion: Chapter 5, Capital Facilities and Utilities, ensures that necessary public facilities and services are available at the time a development is ready for occupancy without decreasing current service levels below locally established minimum standards.

The following facilities must meet adopted level of service standards and be consistent with the concurrency management system: fire protection, police protection, parks and recreation, libraries, public sewer, public water, solid waste disposal and recycling, transportation, and schools.

This information is already covered in the Chapter 5 – Capital Facilities and Utilities.

When development or redevelopment occurs, it is also important that adequate provision is made for stormwater drainage facilities, paved streets, sidewalks, street lighting, traffic and access

control, circulation, off-street parking and loading facilities, transit, bicycle and pedestrian facilities, and other public improvements made necessary by individual developments.

LU 1.13 Parks and Open Spaces

Develop funding mechanisms, incentives, and other methods to procure land for formal parks and/or natural open space in existing and new neighborhoods based upon adopted standards of the Comprehensive Plan.

LU 1.14 ~~Existing~~ Nonconforming Uses

Avoid the creation of large areas of nonconforming uses at the time of adoption of new development regulations.

~~**Discussion:** To achieve the objectives of the Comprehensive Plan, the intensity of the planned land use has been reduced in several areas of the city. It is not anticipated that the impact of these changes will be significant. The affected areas are usually planned or zoned at a higher intensity level than is reflected by the existing land use. Many of these areas have not been built out at the intensity level allowed by policies and regulations that have been in affect a long time, in some cases, over 40 years.~~

The term "nonconforming" is the actual term for what this policy is discussing. Discussion was removed by the Focus Group as the policy itself is self-explanatory.

~~A potential outcome of this planning approach is the creation of nonconforming uses. Properties with this status often deteriorate over time because there is a lack of incentive to invest in maintenance and property improvement. Often this creates adverse impacts to surrounding properties. This policy is designed to avoid this occurrence.~~

LU 1.15 Airfield Influence Areas

Prohibit the siting of land uses that are incompatible with aviation operations in the Airfield Influence Areas designated on Comprehensive Plan maps, and contain residential Comprehensive Plan designations and zoning in the Airfield Influence Areas to their existing locations not allowing for expansion or increases in residential density.

Discussion: Aviation facilities are a functionally and economically vital part of the community. The Federal Aviation Administration's Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace, establishes standards for determining obstructions to the airspace necessary for safe aircraft operations. Part 77 regulations define a set of airspace protection surfaces referred to as "imaginary surfaces." which may not be penetrated by any structures or natural features. However, the height of development is not the only characteristic that can cause it to be incompatible with aviation facilities. Areas surrounding these facilities are impacted by noise and safety concerns. RCW 36.70.547 General Aviation Airport mandates; "Every county, city, and town in which there is located a general aviation airport that is operated for the benefit of the general public, whether publicly owned or privately owned public use, shall, through its comprehensive plan and development regulations, discourage the siting of incompatible uses adjacent to such general aviation airport." Air Field operators prepare and maintain Master Plans with the guidance of the Federal Aviation Administration (FAA) or the Department of Defense (DOD). The Master Plans are used to identify Airfield Influence Areas based on their proximity to an airfield, air traffic patterns, relative risk of an accident or current or anticipated levels of aviation generated noise. The Airfield Influence Areas are designated on Comprehensive Plan maps.

Residential uses and uses generally associated with residential uses such as schools and religious institutions are highly sensitive to aviation operation impacts. Other uses that concentrate a large number of people in a small area, endanger critical community infrastructure or create hazards for air traffic are also incompatible. Because of their low building occupancies and similar impacts on adjoining properties industrial uses are generally considered to be compatible with aviation facilities. In order to avoid an increase in potential conflicts between residents and airfield operations no additional land within the Airfield Influence Areas shall be designated for residential uses or other uses that have a high congregation of people. Existing residential designations shall not be changed to a higher density designation. Residential uses are prohibited in Commercial and Industrial designations. Existing Industrial designations are to be preserved and industrial uses that complement aviation facilities encouraged. Airfield Overlay Zones found in the City's development code shall only allow commercial and industrial uses that do not conflict with aircraft operations

LU 2 PUBLIC REALM ENHANCEMENT

Goal: Encourage the enhancement of the public realm.

Policies

LU 2.1 Public Realm Features

Encourage features that improve the appearance of development, paying attention to how projects function to encourage social interaction and relate to and enhance the surrounding urban and natural environment.

Discussion: The "public realm" is the public or private area where people interact with their surroundings or other people. The "public realm" is affected by the appearance, use, and attractiveness of development and how it functions. It is important to design buildings to maintain compatibility with surrounding development, and to design sites that provide for pathways, attractive and functional landscaping, properly proportioned open spaces, and other connecting features that facilitate easy access between public and private places.

LU 2.2 Performance Standards

Employ performance and design standards with sufficient flexibility and appropriate incentives to ensure that development is compatible with surrounding land uses.

Discussion: Performance and design standards should address, among other items, traffic and parking/loading control, structural mass, open space, green areas, landscaping, and buffering. In addition, they should address safety of persons and property, as well as the impacts of noise, vibration, dust, and odors. An incentive system should be devised that grants bonuses, such as increased building height, reduced parking, and increased density, in exchange for development that enhances the public realm.

LU 3 EFFICIENT LAND USE

Goal: Promote the efficient use of land by the use of incentives, density and mixed-use development in proximity to retail businesses, public services, places of work, and transportation systems.

Policies

LU 3.1 Coordinated and Efficient Land Use

Encourage coordinated and efficient growth and development through infrastructure financing and construction programs, tax and regulatory incentives, and by focusinged growth in areas where adequate services and facilities exist or can be economically extended.

Discussion: Future growth should be directed to locations where adequate services and facilities are available. Otherwise, services and facilities should be extended or upgraded only when it is economically feasible to do so.

The centers and corridors designated on the land use plan map are the areas of the city where incentives and other tools should be used to encourage infill development, redevelopment and new development. Examples of incentives the city could use include assuring public participation, using public facilities and lower development fees to attract investment, assisting with project financing, zoning for mixed-use and higher density development, encouraging rehabilitation, providing in-kind assistance, streamlining the permit process, providing public services, and addressing toxic contamination, among other things.

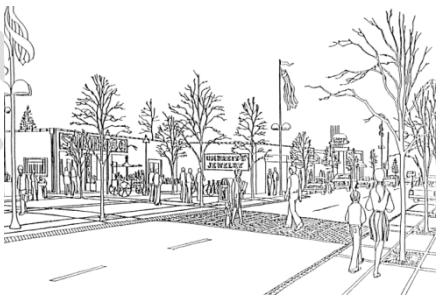
LU 3.2 Centers and Corridors

Designate centers and corridors (neighborhood scale, community or district scale, and regional scale) on the land use plan map that encourage a mix of uses and activities around which growth is focused.

Discussion: Suggested centers are designated where the potential for center development exists. Final determination is subject to a ~~the~~ neighborhood planning process.

Neighborhood Center

Neighborhood centers designated on the Land Use Plan map have a greater intensity of development than the surrounding residential areas. Businesses primarily cater to neighborhood residents, such as convenience businesses and services. Drive-through facilities, including gas stations and similar auto-oriented uses tend to provide services to people living outside the surrounding neighborhood and should be allowed only along principal arterials and be subject to size limitations and design guidelines. Uses such as a day care center, a church, or a school may also be found in the neighborhood center.



Businesses in the neighborhood center are provided support by including housing over ground floor retail and office uses. The most dense housing should be focused in and around the neighborhood center. Density is high enough to enable frequent transit service to a neighborhood center and to sustain neighborhood businesses. Housing density should decrease as the distance from the neighborhood center increases. Urban design guidelines for Centers and Corridors, located in the Spokane Municipal Code, ~~of the Comprehensive Plan or a neighborhood plan~~ are used to guide architectural and site design to promote compatible, mixed land uses, and to promote land use compatibility with adjoining neighborhoods.

This reference to Neighborhood Plans was removed because neighborhoods may not have design guidelines or the opportunity to develop them.

Buildings in the neighborhood center are oriented to the street. This encourages walking by providing easy pedestrian connections, by bringing activities and visually interesting features closer to the street, and by providing safety through watchful eyes and activity day and night. Parking lots should not dominate the frontage of these pedestrian-oriented streets, interrupt pedestrian routes, or negatively impact surrounding neighborhoods. Parking lots should be located behind or on the side of buildings as a rule.

To promote social interaction and provide a focal point for the center, a central gathering place, such as a civic green, square, or park, should be provided. To identify the center as the major activity area of the neighborhood, it is important to encourage buildings in the core area of the neighborhood center to be taller. Buildings up to three stories are encouraged in this area.

Attention is given to the design of the circulation system so pedestrian access between residential areas and the neighborhood center is provided. To be successful, centers need to be integrated with transit. Transit stops should be conveniently located near commercial and higher density residential uses, where transit service is most viable.

The size and composition of neighborhood centers, including recreation areas, vary by neighborhood, depending upon location, access, neighborhood character, local desires, and market opportunities. Neighborhood centers should be separated by at least one mile (street distance) or as necessary to provide economic viability. As a general rule, the amount of commercial space and percent devoted to office and retail should be proportional to the number of housing units in the neighborhood. The size of individual commercial business buildings should be limited to assure that the business is truly neighborhood serving. The size of the neighborhood center, including the higher density housing surrounding the center, should be approximately 15 to 25 square blocks. The density of housing should be about 32 units per acre in the core of the neighborhood center and may be up to 22 units per acre at the perimeter.

The following locations are designated as neighborhood centers on the land use plan map:

- Indian Trail and Barnes;
- South Perry;
- Grand Boulevard/12th to 14th;
- Garland;
- West Broadway;
- Lincoln and Nevada;
- Fort George Wright Drive and Government Way.

The list added here and on the following pages (listing the various centers and corridors) were moved from policies LU 3.6 through 3.10.

District Center

District centers are designated on the land use plan map. They are similar to neighborhood centers, but the density of housing is greater (up to 44 dwelling units per acre in the core area of the center) and the size and scale of schools, parks, and shopping facilities are larger because they serve a larger portion of the city. As a general rule, the size of the district center, including the higher density housing surrounding the center, should be approximately 30 to 50 square blocks.

As with a neighborhood center, new buildings are oriented to the street and parking lots are located behind or on the side of buildings whenever possible. A central gathering place, such as a civic green, square, or park is provided. To identify the district center as a major activity area, it is important to encourage buildings in the core area of the district center to be taller. Buildings up to five stories are encouraged in this area

The circulation system is designed so pedestrian access between residential areas and the district center is provided. Frequent transit service, walkways, and bicycle paths link district centers and the downtown area.

The following locations are designated as district centers on the land use plan map:

- Shadle – Alberta and Wellesley;
- Lincoln Heights – 29th and Regal;
- 57th and Regal;
- Grand District
- Southgate

The Southgate District Center, established after the 2006 Comprehensive Plan Update, has been added to this list.

Employment Center

Employment centers have the same mix of uses and general character features as neighborhood and district centers but also have a strong employment component. The employment component

is expected to be largely non-service related jobs incorporated into the center or on land immediately adjacent to the center.

Employment centers vary in size from 30 to 50 square blocks plus associated employment areas. The residential density in the core area of the employment center may be up to 44 dwelling units per acre. Surrounding the center are medium density transition areas at up to 22 dwelling units per acre.

The following locations are designated as employment centers on the land use plan map:

- East Sprague – Sprague and Napa;
- North Foothills Employment Center;
- Maxwell and Elm;
- Holy Family;
- North Nevada, between Westview and Magnesium.
- Trent and Hamilton

Corridors

Corridors are areas of mixed land use that extend no more than two blocks in either direction from the center of a transportation corridor.

Within a corridor, there is a greater intensity of development in comparison to the surrounding residential areas. Housing at a density up to 44 units per acre and employment densities are adequate to support frequent transit service. The density of housing transitions to a lower level (up to 22 units per acre) at the outer edge of the corridor. A variety of housing styles, apartments, condominiums, rowhouses, and houses on smaller lots are allowed. A full range of retail services, including grocery stores serving several neighborhoods, theaters, restaurants, dry-cleaners, hardware stores, and specialty shops are also allowed. Low intensity, auto-dependent uses (e.g., lumber yards, automobile dealers, and nurseries) are prohibited.

Corridors provide enhanced connections to other centers, corridors, and downtown Spokane. To accomplish this, it is important to make available safe, attractive transit stops and pedestrian and bicycle ways. The street environment for pedestrians is much improved by placing buildings with multiple stories close to the street with wide sidewalks and street trees, attractive landscaping, benches, and frequent transit stops. Parking lots should not dominate the frontage of these pedestrian-oriented streets, interrupt pedestrian routes, or negatively impact surrounding neighborhoods. Parking lots should be located behind or on the side of buildings whenever possible.

The following locations are designated as corridors on the land use plan map:

- North Monroe Street;
- Hillyard Business Corridor;
- Hamilton Street Corridor

Regional Center

~~Downtown Spokane is the regional center, containing the highest density and intensity of land use. It is the primary economic and cultural center of the region. Emphasis is on providing more housing opportunities and neighborhood services for downtown residents, in addition to~~

~~enhancing economic, cultural, and social opportunities for the city and region.~~ Downtown Spokane is the regional center and is the primary economic, cultural and social center of the region. With the creation and development of the University District on the east end of Downtown, it is also a major academic hub with the collaboration of multiple institutions of higher education. Downtown contains the highest density and intensity of land use, and continues to be a targeted area for additional infill housing opportunities and neighborhood amenities to create a more livable experience.

The Focus Group rewrote this paragraph to update, clarify, and strengthen the discussion.

The following location is designated as the regional center on the land use plan map:

- Downtown Spokane

LU 3.3 Planned Neighborhood Centers

Designate new centers or corridors in appropriate locations on the land use plan map through a city-approved planning process. ~~*neighborhood planning process.*~~

Changes to this policy were made to clarify that approval responsibility for any new center designation rests with the City Council.

Discussion: The comprehensive plan recognizes that centers and corridors are the most appropriate venue for the location of commercial and higher density residential uses. In some areas of the city, there may be a need to establish a center or corridor. The exact location, boundaries, size, and mix of land uses in a potential neighborhood center should be determined through a city-approved sub-area ~~the neighborhood~~ planning process that is inclusive of all interested stakeholders. This process may be initiated by the city at the request of a neighborhood or private interest. Objective criteria should include:

- existing and planned density;
- amount of commercial land needed to serve the neighborhood;
- capital facility ~~transportation~~ investments and access to ~~including~~ public transit; and
- other characteristics of a neighborhood center as provided in this plan, or as further refined.

LU 3.4 Planning for Centers and Corridors

Utilize basic criteria for growth planning estimates and, subsequently, growth targets for centers, and corridors.

Discussion: Growth planning estimates and growth targets for centers and corridors should be based on:

- availability of infrastructure;
- public amenities and related facilities and services capacity for residential and commercial development;
- existing and proposed residential densities and development conditions;
- accessibility of transit; and,
- density goals for centers and corridors.

LU 3.5 Mix of Uses in Centers

Achieve a proportion of uses in centers that will stimulate pedestrian activity and create mutually reinforcing land uses.

Discussion: Neighborhood, District, and Employment Centers are designated on the land use plan maps in areas that are substantially developed. New uses in centers should complement existing on-site and surrounding uses, yet seek to achieve a proportion of uses that will stimulate

pedestrian activity and create mutually reinforcing land use patterns. Uses that will accomplish this include public, core commercial/office and residential uses.

All centers are mixed-use areas. Some existing uses in designated centers may fit with the center concept; others may not. Planning for centers should first identify the uses that do not fit and identify sites for new uses that are missing from the existing land use pattern. Ultimately, the mix of uses in a center should seek to achieve the following minimum requirements:

TABLE LU 1 MIX OF USES IN CENTERS

Use	Neighborhood Center	District and Employment Center
Public	10 percent	10 percent
Commercial / Office	20 percent	30 percent
Higher Density Housing	40 percent	20 percent

Note: All percentage ranges are based on site area, rather than square footage of building area.

This recommended proportion of uses is based on site area and does not preclude additional upper floors with different uses.

The ultimate mix of land uses and appropriate densities should be clarified in a site-specific planning process in order to address site-related issues such as community context, topography, infrastructure capacities, transit service frequency, and arterial street accessibility. Special care should be taken to respect the context of the site and the character of surrounding existing neighborhoods. The 10 percent public use component is considered a goal and should include land devoted to parks, plazas, open space, and public facilities.

~~LU 3.6 Neighborhood Centers~~

~~*Designate the following seven locations as neighborhood centers on the land use plan map.*~~

- ~~Indian Trail and Barnes;~~
- ~~South Perry;~~
- ~~Grand Boulevard/12th to 14th;~~
- ~~Garland;~~
- ~~West Broadway;~~
- ~~Lincoln and Nevada;~~
- ~~Fort George Wright Drive and Government Way.~~

Policies LU3.6 through 3.10 are no longer necessary as these lists have been moved to LU 3.2.

~~LU 3.7 District Centers~~

~~*Designate the following four locations as district centers on the land use plan map.*~~

- ~~Shadle – Alberta and Wellesley;~~
- ~~Lincoln Heights – 29th and Regal;~~
- ~~57th and Regal;~~
- ~~Grand District~~

~~LU 3.8 Employment Centers~~

~~*Designate the following five locations as employment centers on the land use plan map.*~~

- ~~East Sprague – Sprague and Napa;~~
- ~~North Foothills Employment Center;~~
- ~~Maxwell and Elm;~~
- ~~Holy Family;~~
- ~~North Nevada, between Westview and Magnesium.~~
- ~~Trent and Hamilton Employment Center~~

~~LU 3.9 Corridors~~

~~*Designate the following three locations as corridors on the land use plan map.*~~

- ~~North Monroe Street;~~
- ~~Hillyard Business Corridor;~~
- ~~Hamilton Street Corridor.~~

~~LU 3.10 Regional Center~~

~~*Designate Downtown Spokane as the regional center.*~~

LU 3.6~~11~~ Compact Residential Patterns

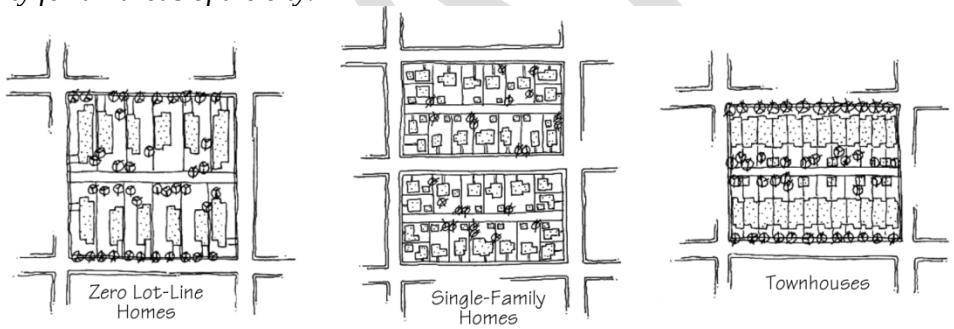
Allow more compact and affordable housing in all neighborhoods, in accordance with ~~neighborhood-based~~ design guidelines.

Discussion: Compact and affordable housing includes such choices as townhouses, accessory dwelling units (granny flats), live-work housing, triplexes, zero-lot line, starter, small-lot, and rowhouses.

Neighborhoods may not have design guidelines or the opportunity to develop them. However, should they ever be adopted, the words "design guidelines" means all design guidelines, including neighborhood-based guidelines.

LU 3.7~~12~~ Maximum and Minimum Lot Sizes

Prescribe maximum, as well as minimum, lot size standards to achieve the desired residential density for all areas of the city.



Discussion: One of the ways to use the remaining usable land more efficiently is to increase the overall housing density. Increased density promotes efficient and cost-effective provision of city facilities, services, and transportation systems and enables the provision of affordable housing.

LU 3.8~~13~~ Shared Parking

Encourage shared parking facilities for business and commercial establishments that have dissimilar peak use periods.

Discussion: Many businesses have different hours of the day during which they are most busy. Whereas a movie theater is occupied during the evening hours, an office building flourishes during the day. In this type of situation, there is an opportunity for shared parking. Shared parking lots consume less land and are a more efficient use of land compared to the construction of separate parking areas for each individual business.

LU 4 TRANSPORTATION

Goal: Promote a network of safe and cost effective transportation alternatives, including transit, carpooling, bicycling, pedestrian-oriented environments, and more efficient use of the automobile, to recognize the relationship between land use and transportation.

Policies

LU 4.1 Land Use and Transportation

Coordinate land use and transportation planning to result in an efficient pattern of development that supports alternative transportation modes consistent with the transportation chapter and makes significant progress toward reducing sprawl, traffic congestion, and air pollution.

Discussion: The GMA recognizes the relationship between land use and transportation. It requires a transportation element that implements, and is consistent with, the land use element. The transportation element must forecast future traffic and provide information on the location, timing, and capacity needs of future growth. It must also identify funding to meet the identified needs. If probable funding falls short of needs, the GMA requires the land use element to be reassessed to ensure that needs are met.

LU 4.2 Land Uses That Support Travel Options and Active Transportation

The Focus Group wished to emphasize healthier living.

Provide a compatible mix of housing and commercial uses in neighborhood centers, district centers, employment centers, and corridors.

Discussion: This provides opportunities for people to use active forms of transportation to get ~~walk~~ to work and shopping, enables less reliance on automobiles, reduces commuting times and distances, makes mass transit more viable, and provides greater convenience for area residents while supporting physical activity.

LU 4.3 Neighborhood ~~Thru~~Through-Traffic

Create boundaries for new neighborhoods through which principal arterials should not pass.

Discussion: Principal arterials that bisect neighborhoods create undesirable barriers to pedestrian circulation and adversely impact adjoining residences. Whenever possible, principal arterials should be located on the outer edge of neighborhoods.

LU 4.4 Connections

LU 4.4 and 4.5 were reworded by the Focus Group for clarity.

~~*Design residential, commercial, and industrial development that takes into consideration the connections, both vehicular and pedestrian, to adjoining sites to reduce personal automobile trips.*~~ *Form a well-connected network which provides safe, direct and convenient access for all users, including pedestrians, bicycles, and automobiles, through site design for new development and redevelopment.*

LU 4.5 Block Length

Create a network of streets that is generally laid out in a grid pattern that features more street intersections and shorter block lengths in order to increase street connectivity and access.

Discussion: Excessively long blocks and long local access residential streets result in fewer alternative routes for pedestrian and vehicle travel and generally result in increased vehicle speeds. A grid pattern featuring more street intersections and shorter blocks provides more alternative routes for pedestrian and vehicle travel and tends to slow traffic. Block lengths of approximately

250 to 350 feet on average are preferable, but should not exceed 660 feet in length (per Spokane Municipal Code ~~17H.010.030, Street Layout Design~~).~~, recognizing that~~ ~~e~~Environmental conditions such as ~~(e.g.,~~ topography or rock outcroppings~~)~~ might constrain these shorter block lengths in some areas.

The Focus Group included a specific SMC reference here – referring to the Street Layout Design standards. However, staff recommends that the exact SMC reference be removed here and rather refer to the code in general. If the Code were to be modified, the language as presented here would require a Comp Plan Amendment to remain consistent.

The maximum was increased to 660 feet to match current SMC requirements.

LU 5 DEVELOPMENT CHARACTER

Goal: Promote development in a manner that is attractive, complementary, and compatible with other land uses.

Policies

LU 5.1 Built and Natural Environment

Ensure that developments are sensitive to ~~and provide adequate impact mitigation so that they maintain and enhance the quality of~~ the built and natural environment (~~e.g.~~for example, air and water quality, noise, traffic congestion, and public utilities and services)~~.~~, by providing adequate impact mitigation to maintain and enhance quality of life.

This policy was modified by the Focus Group for clarity.

LU 5.2 Environmental Quality Enhancement

Encourage site locations and design features that enhance environmental quality and compatibility with surrounding land uses.

Discussion: Ensure the provision of adequate landscaping and other site design features that enhance the compatibility of development with the surrounding area.

LU 5.3 Off-Site Impacts

Ensure that off-street parking, access, and loading facilities do not adversely impact the surrounding area.

Discussion: Off-street parking, access, and loading facilities are usually associated with the development of higher density residential, office, and commercial uses. These features often have major impacts on single-family residential areas. The impacts are most significant when these facilities are next to or intrude between homes. When these facilities are accessory to a higher density residential or nonresidential use, they should be developed according to the same policies and zoning regulations as govern the primary use. New parking lots should also have the same zoning classification as the primary use. In addition, these facilities should be developed to minimize adverse impacts to adjacent properties. All parking lots should be paved. Parking lots and loading areas should have appropriate buffers to fully screen them from adjacent, less intensive uses. Access to business and higher density residential sites should be controlled to avoid impacts on adjacent uses, pedestrian movement, and street functions.

LU 5.4 Natural Features and Habitat Protection

Ensure development is accomplished in a manner that protects significant natural features and wildlife habitat.

Discussion: ~~The Visions and Values document recognizes the importance of acquiring and preserving the natural areas inside and outside the city. These n~~Natural areas include

environmentally sensitive areas, critical areas and buffers, trail corridors, areas with difficult topography, stands of trees, wildlife habitat, and other natural features. To encourage conservation of natural features and habitat protection, development regulations should be established that allow clustering of development at higher densities than otherwise allowed (consistent with overall density allowed for the site). If the minimum density cannot be achieved by clustering of development, exceptions to minimum residential density requirements may be permitted.

LU 5.5 Compatible Development

Ensure that infill and redevelopment projects are well-designed and compatible with surrounding uses and building types.

LU 6 ADEQUATE PUBLIC LANDS AND FACILITIES

Goal: Ensure the provision and distribution of adequate, well-located public lands and facilities throughout the city.

Policies

LU 6.1 Advance Siting

Identify, in advance of development, sites for parks, open space, wildlife habitat, police stations, fire stations, major stormwater facilities, schools, and other lands useful for public purposes.

Discussion: Attempts should be made to obtain or secure (e.g., by obtaining the right of first refusal) such sites as early as possible in the development of an area to ensure that the facilities are well located to serve the area and to minimize acquisition costs.

LU 6.2 Open Space

Identify, designate, prioritize, and seek funding for open space areas.

Discussion: The open space land use map designation consists of three major categories:

Conservation Open Space: Conservation Open Space includes areas that are publicly owned, not developed, and designated to remain in a natural state. It is intended to protect areas with high scenic value, environmentally sensitive conditions, historic or cultural values, priority animal habitats, and/or passive recreational features. It is expected that improvements in these areas would be limited to those supporting preservation or some passive recreation activities, like soft trails and wildlife viewpoints.

Potential Open Space: Potential Open Space includes areas that are not currently publicly owned, not developed, and designated to remain in a natural state. The purpose and types of improvements in this category are the same as the Conservation Open Space category. Public acquisition of land designated Potential Open Space is encouraged and may be accomplished by outright purchase, nature space tax incentives, Spokane County Conservation Futures funds, and other methods. Restrictions on the use of land designated Potential Open Space may not occur until the city or Spokane County acquires sufficient interest to prevent development of the lands. Otherwise, uses allowed in the Residential 4-10 designation may be allowed on land designated Potential Open Space.

Open Space: Open Space includes major publicly or privately owned open space areas, such as golf courses, major parks and open space areas, and cemeteries. These areas usually have facilities for active and passive recreation and include paved and unpaved roads, parking lots, hard surface trails, and buildings and facilities that support activities occurring in the open space area.

LU 6.3 School Locations

Work with the local school districts to identify school sites that are well-located to serve the service area and that are readily accessible for pedestrians and bicyclists.

Discussion: Schools are among the most important public facilities society provides for its citizens. Not only are they the centers of learning for children, but they serve as important focal points for all kinds of neighborhood activities. Their libraries and auditoriums often serve as neighborhood meeting places. The health and vitality of a neighborhood school is invariably a clear indicator of the health and vitality of the neighborhood itself.

An elementary or middle school should be centrally located within its service area to allow children to walk to school. The school should be located within or close to a designated center.

This language was moved by the Focus Group from Policies 6.5 and 6.6 and those policies were deleted (see below).

A high school should be centrally located within its service area so as to be easily accessible to vehicular and pedestrian traffic. High schools tend to generate high levels of traffic from student drivers, school personnel, and interscholastic events. To accommodate the higher levels of traffic, high schools should be located on an arterial street. They should also be located within or close to a designated center.

Most of Spokane is served by School District 81. Mead School District 354 serves an area within the northern city limits, and Cheney School District 360 covers an area within the city limits on the southwest side. The Mead, Cheney and Nine Mile School Districts also serve land within the urban growth area.

~~LU 6.4 Land Use Decisions~~

~~*Consider the needs of schools, such as pedestrian safety and a quiet environment conducive to learning, when making land use decisions.*~~

LU 6.4 was removed by the Focus Group as being unnecessary.

~~LU 6.5 Elementary and Middle School Locations~~

~~*Locate elementary and middle schools centrally in their service area on sites that allow children to walk safely to school.*~~

~~**Discussion:** Elementary and middle schools should be located within or close to a designated center.~~

~~LU 6.6 High School Locations~~

~~*Locate high schools centrally in their service areas so they are easily accessible to vehicular as well as pedestrian traffic.*~~

~~**Discussion:** High schools tend to generate high levels of traffic from student drivers, school personnel, and interscholastic events. To accommodate the higher levels of traffic, high schools should be located on arterial streets. A central location within each service area also is desirable but less important than for elementary or middle schools. High schools should be located within or close to a designated center when centers are designated on the land use plan map.~~

LU 6.~~4~~7 City and School Cooperation

~~*Build further on*~~ *Continue the cooperative relationship between the city and school officials.*

Discussion: The city has a modest role to play in school planning. Public schools are operated by local school districts and governed by state and federal laws and regulations. State funds provide the bulk of school finances. Some funds come from the federal government. School districts raise the rest from local property taxes. State laws set standards for service levels and facility development, such as site size and enrollment. They also specify funding methods. These laws thus perform much of the role of a functional plan for schools. School districts complete the remaining tasks of planning.

Nevertheless, there are important things the city can do. Through good planning, ~~we~~ the city can ensure that the environments around existing and future school sites are conducive to their needs.

~~We can take into account t~~The safety needs of school children and the need for school buildings to be appropriately accessible to their service areas should be considered. ~~We~~ The city can certainly continue to work closely with school officials and neighborhoods to serve ~~our~~ citizens ~~together~~.

In addition, the Growth Management Act requires cities and school districts to cooperate in capital facility planning. Future school sites are among the types of "lands needed for public purposes," which must be identified in a city's comprehensive plan. If a school district is to collect impact fees for new schools, the school facilities must be reflected in the city's Capital Facility Program (CFP).

Consideration should also be given to joint planning, which could include prioritization of sites for future school construction and preservation of historic sites.

LU 6.5~~8~~ Schools As a Neighborhood Focus

Encourage school officials to retain existing neighborhood school sites and structures because of the importance of the school in maintaining a strong, healthy neighborhood.

LU 6.6~~9~~ Shared Facilities

Continue the sharing of city and school facilities for neighborhood parks, recreation, and open space uses.

LU 6.7~~10~~ Sharing and Programming Planning

Develop a joint plan for the city and school districts serving Spokane for sharing and programming school sites for common activities.

LU 6.8~~11~~ Siting Essential Public Facilities

Utilize a process for locating essential public facilities that incorporates different levels of public review depending on facility scale and location.

Discussion: The Growth Management Act requires local governments to include a process for identifying and siting essential public facilities. Essential public facilities include those facilities that are typically difficult to site, such as airports, state education facilities and state or regional transportation facilities, ~~and as defined in RCW 47.06.140,~~ state and local correctional facilities, solid waste handling facilities, and in-patient facilities including substance abuse facilities, mental health facilities, group homes, and secure community transition facilities. ~~as defined in RCW71.09.020.~~

In 2002, Spokane County adopted the Spokane County Regional Siting Process for Essential Public Facilities. It includes a siting review process, location analysis, and requirements for public involvement and is incorporated into City land use regulations. The Spokane Municipal Code (SMC) references that siting process. ~~The Steering Committee of Elected Officials approved the Growth Management Siting of Essential Public Facilities Technical Committee Report, which includes a model siting process, an interjurisdictional consistency review process, and an inventory of existing essential facilities. All Spokane County jurisdictions are to include this report in their comprehensive plans.~~

The following discussion was removed because it is already addressed in the Spokane Municipal Code and is redundant to the County's siting process.

~~Essential public facilities are often difficult to site because they have characteristics that may adversely impact surrounding properties. For example, operation of an essential public facility can result in an increase in neighborhood traffic, noise, periodic high use, or other potentially detrimental consequences. Because of these impacts, essential public facilities should be allowed only in those zones in which they are compatible with surrounding land use. Various facilities should be classified as a permitted use, a use allowed as a conditional/special use, an accessory~~

use, or a prohibited use, based on the purpose of the zoning district and the facility's potential for adverse impacts on various uses and the environment. Additional policies regarding land uses needed to serve special needs populations are contained in Chapter 10, Social Health.

The following provisions regarding identification and siting of essential public facilities should be incorporated in the adopted zoning regulations. The more detailed process that is contained in the Growth Management Siting of Essential Public Facilities Technical Committee Report may supplement these provisions.

A. Essential public facilities are public facilities and privately-owned or operated facilities serving a public purpose that are typically difficult to site. They include:

(1). Airports; state education facilities; state or regional transportation facilities; prisons, jails, and other correctional facilities; solid waste handling facilities; inpatient facilities, such as group homes, mental health facilities and substance abuse facilities; sewage treatment facilities; and communication towers and antennas.

(2). Facilities identified by the State Office of Financial Management as essential public facilities, consistent with RCW 36.70A.200.

(3). Facilities identified as essential public facilities in the applicable zoning ordinance.

B. Essential public facilities may be allowed as permitted or conditional/special uses in the zoning code, provided that the regulations do not preclude the siting of an essential public facility in the City of Spokane or its unincorporated urban growth area. Essential public facilities listed as conditional/special uses in the zoning code shall be subject to the following requirements in addition to other applicable conditional/special use requirements:

(1). Essential public facilities shall be classified as follows:

(a) **Essential Public Facilities of a Statewide Nature:** These are major facilities serving or potentially affecting more than one county. These facilities include, but are not limited to, regional transportation facilities, such as regional airports, state correction facilities, and state educational facilities.

(b) **Essential Public Facilities of a Regional/Countywide Nature:** These are local or interlocal facilities serving or potentially affecting residents or property in more than one jurisdiction. They could include, but are not limited to, county jails, county landfills, community colleges, sewage treatment facilities, broadcasting towers, and inpatient facilities (e.g., substance abuse facilities, mental health facilities, and group homes).

(c) **Essential Public Facilities of a Local Nature:** These are facilities serving or potentially affecting only the jurisdiction in which they are proposed to be located (e.g., elementary, middle, and high schools, libraries, and community centers). In order to enable the city or county, as applicable, to determine the project's classification, the applicant shall identify the approximate area within which the proposed project could potentially have adverse impacts, such as increased traffic, public safety risks, noise, glare, or emissions.

(2). Provide early notification and involvement of affected citizens and jurisdictions as follows:

(a) **Essential Public Facilities of a Statewide or Regional/Countywide Nature:** At least 90 days before submitting an application for an essential public facility of a statewide or regional/countywide nature, the prospective applicant shall notify the affected public and jurisdictions of the general type and nature of the proposal, identify sites under consideration for accommodating the proposed facility, and identify opportunities to comment on the proposal. Applications for specific projects shall not be considered complete in the absence of proof

~~of a published notice regarding the proposed project in a local newspaper of general circulation. The purpose of this provision is to enable potentially affected jurisdictions and the public to collectively review and comment on alternative sites for major facilities before the project sponsor has made their siting decision.~~

~~(3). **Essential Public Facilities of a Local Nature:** Essential public facilities of a local nature are subject to the city's or, as applicable, the county's standard notification requirements for conditional/special uses.~~

~~*[NOTE: Once an application is received for a project following the expiration of the "early notification" period, adjacent property owners will be notified consistent with the procedures specified in the adopted zoning regulations.]*~~

~~(4).Major public facilities that generate substantial traffic should be sited near major transportation corridors served or planned to be served by mass transit.~~

~~(5). Applicants for essential public facilities of a statewide or regional/countywide nature shall provide an analysis of the alternative sites considered for the proposed facility. This analysis shall include the following:~~

~~(a) An evaluation of the sites' capability to meet basic siting criteria for the proposed facility, such as size, physical characteristics, access, and availability of necessary utilities and support services.~~

~~(b) An explanation of the need for the proposed facility in the proposed location.~~

~~(c) The sites' relationship to the service area and the distribution of other similar public facilities within the service area or jurisdiction, whichever is larger.~~

~~(d) A general description of the relative environmental, traffic, and social impacts associated with locating the proposed facility at the alternative sites that meet the applicant's basic siting criteria. The applicant shall also identify proposed mitigation measures to alleviate or minimize significant potential impacts.~~

~~(e) The applicant shall also briefly describe the process used to identify and evaluate the alternative sites.~~

~~(6). The proposed project shall comply with all applicable provisions of the comprehensive plan, zoning ordinance, and other city regulations.~~

LU 6.~~9~~12 Facility ~~Neighborhood~~ Compatibility with Neighborhood

Ensure the utilization of architectural and site designs of essential public facilities that are compatible with the surrounding areas.

Discussion: It is important that essential public facilities enhance or improve the environment in which they are proposed. Cost considerations should be balanced with a~~A~~ttempts ~~should be made~~ to construct buildings and site features that are compatible with their surroundings.

LU 6.13 Signs

Ensure that any signs, directional/service or identification, are sized, constructed, and displayed in a manner that does not adversely affect the surrounding land uses.

This policy was removed because it is already addressed in the City's sign code.

LU 7 IMPLEMENTATION

Goal: Ensure that the goals and policies of the comprehensive plan are implemented.

Policies

LU 7.1 Regulatory Structure

Develop a land use regulatory structure that utilizes a variety of ~~creative~~ mechanisms to promote development that provides a public benefit.

Discussion: Incentives are one of the tools that can be used to encourage development that is beneficial to the public. For instance, a development may be allowed a higher residential density, greater lot coverage, or increased building height if there is a dedication of open space for public use or some other development feature that results in a direct benefit to the public.

The regulations should be predictable, reliable, and adaptable to changing living and working arrangements brought about by technological advancements. They should also be broad enough to encourage desirable development and/or redevelopment.

LU 7.2 Continuing Review Process

Develop a broad, community-based process that periodically reevaluates and directs city policies and regulations consistent with this chapter's ~~e~~ Vision~~s~~ and Values.

LU 7.3 Historic Reuse

Allow compatible residential or commercial use of historic properties when necessary to promote preservation of these resources.

Discussion: Preservation of historic properties is encouraged by allowing a practical economic use, such as the conversion of a historic single-family residence to a higher density residential or commercial use. A public review process should be required for conversions to a use not allowed in the underlying zoning district. Special attention should be given to assuring that the converted use is compatible with surrounding properties and the zone in which the property is located. Recommendations from the Historic Landmarks Commission and the Historic Preservation Officer should be received by any decision-maker before a decision is made regarding the appropriateness of a conversion of a historic property.

LU 7.4 Sub-Area Planning Framework

Use the Comprehensive Plan for overall guidance and undertake more detailed sub-area and neighborhood planning in order to provide a forum for confronting and reconciling issues and empowering neighborhoods to solve problems collectively.

LU 8 URBAN GROWTH AREA

Goal: Maintain ~~Provide~~ an urban growth area that includes areas and densities sufficient to accommodate the city's allocated population, housing and employment growth for the succeeding twenty-year period, including the accommodation of the medical, governmental, educational, institutional, commercial, and industrial facilities related to such growth, but that does not exceed the areas necessary to accommodate such growth. ~~is large enough to accommodate the expected population growth for the next 20 years in a way that meets the requirements of the CWPPs.~~

The Focus Group rewrote this Goal to reflect the more detailed wording in the Revised Code of Washington (RCW 36.70A.110). Changes were made to the policies below as well for the same reason.

Policies

LU 8.1 ~~Population Accommodation~~ Role of Urban Growth Areas

Limit urban sprawl by encouraging development in urban areas where adequate public facilities already exist or where such facilities can be more efficiently provided. ~~Accommodate the majority of the county's population and employment in urban growth areas in ways that ensure a balance~~

~~*between livability, preservation of environmental quality, open space retention, varied and affordable housing, high quality cost-efficient urban services, and an orderly transition from county to city jurisdiction.*~~

Discussion: New growth should be directed to urban areas to allow for more efficient and predictable provision of adequate public facilities, to promote orderly transition of governance for urban areas, to reduce development pressure on rural lands, and to encourage redevelopment of existing urban areas.

LU 8.2 ~~Urban Growth Area~~ Joint Planning in Urban Growth Area

Plan with Spokane County for the unincorporated portions of the urban growth area.

Discussion: ~~Planning for the urban growth area should include the adoption of consistent land use designations, policies, and development standards, as well as the identification and preservation of natural environmental features.~~ Work with Spokane County toward adoption of consistent land use designations and development standards in unincorporated urban growth areas in recognition that urban growth areas are the city's future annexation areas and will become the city's responsibility upon annexation.

LU 8.3 Review of Urban Growth Area ~~Boundary Establishment~~

~~*Establish an urban growth area boundary, consistent with the CWPPs, that provides enough land to accommodate the urban growth area's projected growth for the next 20 years.*~~ *Review the urban growth area boundary in accordance with the requirements of the Growth Management Act and Countywide Planning Policies relative to the current Office of Financial Management's twenty-year population forecast and make adjustments, as warranted, to accommodate the projected growth.*

Discussion: The City of Spokane and Spokane County should coordinate their periodic reviews of the urban growth area, reviewing the densities permitted within the city to determine the extent to which the urban growth occurring within Spokane County has located in the city and within the unincorporated portions of the urban growth area.

The review process should include conducting an inventory of the buildable land supply using the latest available data gathering and mapping techniques, including geographical information system (GIS) or newer technology.

~~LU 8.4 Urban Land Supply~~

~~*Regularly monitor the relationship between land supply and demand to ensure that the goals of the comprehensive plan are met.*~~

Policies LU 8.4 and parts of 8.5 were integrated into LU 8.3 by the Focus Group.

~~**Discussion:** To assure that land supply is adequate, the land supply should be regularly monitored. Particularly important at the onset of the identification of an urban growth boundary, regular monitoring can allow the city and Spokane County to make adjustments as necessary.~~

~~LU 8.5 Growth Boundary Review~~

~~*Review the urban growth area boundary at least once every five years relative to the current Office of Financial Management's twenty-year population forecast and make adjustments, as warranted, to accommodate the projected growth.*~~

This policy was removed by the Focus Group because the Countywide Planning Policies have since changed to eliminate the five year requirement.

LU 9 ANNEXATION ~~AREAS~~

Goal: Support annexations that enhance effective and efficient government. ~~create logical boundaries and reasonable service areas within the city's urban growth area, where the city has the fiscal capacity to provide services.~~

The Focus Group rewrote this Goal to eliminate redundancies with Policies below.

Policies

LU 9.1 ~~Logical~~ Annexation Boundaries

The Focus Group modified this policy to incorporate information from other policies and from the modified Goal above.

Encourage ~~the~~ annexations that create logical boundaries and reasonable service areas within the city's urban growth area, where the city has demonstrated the fiscal capacity to provide services. ~~of areas that are logical extensions of the city.~~

Discussion: ~~As much as possible, the city should avoid annexations that create "peninsulas" of unincorporated land within the city limits. The following policies shall apply to the size of an annexation and the location of boundaries:~~

~~A. The City Council will decide whether to require increases in the size of proposed annexations on a case-by-case basis.~~

~~B. City staff may recommend expansion of a proposed annexation prior to the first meeting with property owners required under RCW 35A.14.120. The City Council will consider whether a requirement that the initiator expand the proposed annexation up to the maximum allowed under state law would meet any of the following criteria:~~

~~1. The expanded annexation would create logical boundaries and service areas.~~

~~2. Without the proposed annexation, the area to be added would not likely be annexed within the foreseeable future.~~

~~3. The area to be added would eliminate or reduce an unincorporated county peninsula.~~

~~C. If the City Council concludes that any of the criteria applies to a specific annexation proposal, it will require the initiator to expand the boundaries of the proposed annexation to the extent allowed by law and deemed appropriate by the City Council.~~

~~D. Service delivery should be a criteria in the formation of boundaries. Annexations should attempt to maximize efficiencies of urban services.~~

Rapid development and population growth frequently occur just outside City boundaries where property is less expensive and zoning laws may be less restrictive. Developments on the City's fringe create increased traffic congestion and the need for improved urban governmental services, including police and fire protection. These problems cross boundary lines and increase the City's cost of providing urban governmental services without corresponding revenues to cover the increased costs. The Growth Management Act seeks to reduce urban sprawl by encouraging development in urban areas where adequate public facilities already exist or where such facilities can be more efficiently provided and facilitates the annexation of urban areas through the coordinated comprehensive planning process it mandates.

As the City annexes territory, it should be guided by the following objectives:

(1) Preservation of natural neighborhoods and communities;

(2) Use of physical boundaries, including but not limited to bodies of water, highways, and land contours;

(3) Creation and preservation of logical service areas; and

(4) Adjustment of impractical municipal boundaries.

LU 9.2 Peninsula Annexation

Encourage and assist property owners in existing unincorporated "peninsulas" in the city's urban growth area to annex to the city.

Discussion: Unincorporated "peninsulas" are land areas of any size that are located outside of the city limits that have at least eighty percent of their boundaries contiguous to the city. RCW 35.13.182 et seq., allows the cities to resolve to annex such areas (in existence before June 30, 1994) subject to referendum for forty-five days after passage following the adoption of the annexation ordinance.

LU 9.3 City Utilities

Require property owners requesting city utilities to annex or sign a binding agreement to annex when requested to do so by the city.

~~LU 9.4 Readily-Identifiable Boundaries~~

This policy was integrated into Policy LU 9.1 above.

~~*Use readily identifiable boundaries, such as lakes, rivers, streams, railroads, and highways, to define annexation areas wherever possible.*~~

~~**Discussion:** Permanent physical features provide city limit boundaries that are easy to identify and understand. Streets or roads may be used where appropriate. However, streets and roads are generally less suitable boundaries because of utility access issues.~~

LU 9.45 Community Impacts

Evaluate all annexations on the basis of their short and long-term community impacts and benefits.

Discussion: If the annexation includes proposed development, consideration of the proposal should include an analysis of the short and long-term impacts on the neighborhood and city in terms of all services required~~, including water, sewer, urban runoff, roads, schools, open space, police and fire protection, garbage collection, and other services~~.

LU 9.56 Funding Capital Facilities in Annexed Areas

Ensure that annexations do not result in a negative fiscal impact on the city.

Discussion: In general, property owners in annexing areas should fund the public facility improvements necessary to serve the area ~~new development~~ in a manner that is consistent with applicable City of Spokane policies and regulations. If the city determines that an area annexing to Spokane requires public facility improvements to correct health and safety related problems, the property owners within the annexed area should fund these improvements. If an area annexing to Spokane has public facilities that do not meet c~~C~~ity ~~of Spokane~~ standards and the property owners or residents want to improve the facilities to meet city standards, the property owners should fund those improvements, or the proportion of those improvements, that do not have a citywide benefit. Public facility improvements within annexed areas that have a citywide benefit should be considered for funding through city revenues as part of the city's ~~Spokane~~ capital facilities and improvements planning processes.

~~LU 9.7 City Construction Standards~~

The Focus Group moved this policy language to a new section, Joint Planning (LU 10).

~~*Require utilities, roads, and services in the city's urban growth area to be built to city standards.*~~

~~**Discussion:** Interlocal agreements are a mechanism that should be used to apply these standards to the urban growth area. Requiring these facilities to be~~

~~built to city standards will assure that they meet city standards at the time of annexation of these areas to the city.~~

LU 9.6 Land Use and Zoning Designations Upon Annexation

This policy was moved here by the Focus Group from LU 10.3 below.

Recognize the interests of the residents of the annexing area and, in the absence of specific policies and standards adopted by the City, honor the intent of adopted county plans and ordinances for areas proposed to be annexed.

Discussion: Spokane County's land use and zoning designations to the area are generally converted to The City Comprehensive Plan Land Use Plan Map and Official Zoning Map designations that are the most similar concurrently with an annexation.

LU 9.7~~8~~ City Bonded Indebtedness

Require property owners within an annexing area to assume a share of the city's bonded indebtedness.

Discussion: When property is annexed to the city, it becomes subject to all city laws. It is also assessed and taxed in the same way as the property already in the city. As a result, annexed areas are required to help pay for the outstanding indebtedness of the city approved by voters prior to the effective date of the annexation.

LU 10 JOINT PLANNING

Goal: Support joint growth management planning and annexation requests~~,~~ which best meet the Comprehensive Plan's development goals and policies.

Policies

LU 10.1 Land Use Plans

Prepare land use plans in cooperation with Spokane County for the urban growth area to ensure that planned land uses are compatible with adopted city policies and development standards at the time of annexation.

LU 10.2 Consistent Development Standards

The Focus Group moved this here from LU 9.7.

Require utilities, roads, and services in the city's urban growth area to be built to city standards.

Discussion: Interlocal agreements are a mechanism that should be used to apply these standards to the urban growth area. Requiring these facilities to be built to city standards will assure that they meet city standards at the time of annexation of these areas to the city.

LU 10.3~~2~~ Special Purpose Districts

Confer with affected special purpose districts and other jurisdictions to assess the impact of annexation prior to any annexation.

Discussion: Where possible, boundaries should be mutually resolved by the jurisdictions involved before any final action is taken on a formal annexation petition.

~~**LU 10.3 Existing Plans**~~

~~*Recognize the interests of the residents of the annexing area and, in the absence of specific policies and standards adopted by the city, honor the intent of adopted county plans and ordinances for areas proposed to be annexed.*~~

This policy was moved to Policy LU 9.6 above.

~~**LU 10.4 Permitted Uses**~~

~~*Discourage annexations when the sole purpose is to obtain approval of uses not allowed by county regulations unless the proposal is consistent with an adopted joint plan and with city standards and policies.*~~

The Focus Group eliminated this policy because it was redundant with LU 10.1 and 10.2.

LU 10.~~4~~5 ~~UGA Expansion~~Long Range Urban Growth Area Planning

Establish a forty-year planning horizon to address eventual expansion of UGAs beyond the twenty-year boundary required by the Growth Management Act.

Discussion: The purpose of the longer planning period is to ensure the ability to expand urban governmental services and avoid land use barriers to future expansion of the twenty-year UGA boundary. Within the urban reserve areas, densities and land use patterns should be established that do not preclude later subdivision to urban densities.

To identify urban reserve areas, it is necessary for the city and Spokane County to work together to identify the amount of land necessary to support the next 40 years of growth. Factors that need to be considered include the ability to provide public services and facilities and carrying capacity issues, such as water quantity and air quality.

3.5 DESCRIPTION OF LAND USE DESIGNATIONS

Much of the future growth will occur in district centers, employment centers, neighborhood centers, and corridors. A key component of each of these focused growth areas is higher density housing centered around or above service and retail facilities. This enables residents near the center or corridor to walk or bicycle for their daily needs. Higher density housing also provides economic support for the businesses and allows for more efficient transit service along the corridor and between mixed-use centers and downtown Spokane.

Focusing growth results in a more compact urban form with less land being used at the fringe of the city. It provides city residents with more housing and transportation choices. New policies, regulations, and incentives allow mixed-use in designated centers and corridors and assure that these areas are designed to be compatible with surrounding lower density residential areas.

The land use designations and their general characteristics are as follows:

Neighborhood Center: The neighborhood center contains the most intensive activity area of the neighborhood. In addition to businesses that cater to neighborhood residents, activities such as a day care center, church, or school may be found in the center. Size and composition of the center vary depending upon location, access, neighborhood character, local desires, and market opportunities. Important elements to be included in the center are a civic green, square or park, and a transit stop. Buildings fronting on the square or green should be at least two or three stories in height with housing located above ground floor retail and office uses. Building height is stepped-down and density of housing is lower as distance from the center increases. The circulation system is designed to facilitate pedestrian access between residential areas and key neighborhood components.

District Center: District centers are similar to neighborhood centers except they are larger in scale and contain more intensive residential and commercial activities. Size and composition of the center vary depending upon location, access, neighborhood character, local desires, and market opportunities. District centers are usually located at the intersection of principal arterial streets or major transit hubs. To enhance the pedestrian environment, plazas, green space, or a civic green serve as an integral element of the district center. Higher density housing is found both within and surrounding the district center to help support business and transit. A circulation system, which facilitates pedestrian access between residential areas and the district center, is provided. District centers and downtown Spokane are linked by frequent transit service, walkways, and bikeways.

Employment Center: Employment centers have the same mix of uses and general character features as neighborhood and district centers but also have a strong employment component. The employment component is expected to be largely non-service related jobs incorporated into the center or on land immediately adjacent to the center. Employment centers vary in size from thirty to fifty square blocks plus associated employment areas.

Corridor: The corridor concept focuses growth along transportation corridors, such as a major transit line. It is intended to allow improved transit service to daily activities. Housing and employment densities are increased along the corridor to support frequent transit service and business. Usually, corridors are no more than two blocks in depth along either side of the corridor. Safe, attractive transit stops and pedestrian and bicycle ways are provided. A variety of housing styles—apartments, condominiums, row-houses, and houses on smaller lots—are located in close proximity to the corridor. Important elements include multi-story buildings fronting on wide sidewalks with street trees, attractive landscaping, benches, and frequent transit stops. A full range of services are provided including grocery stores serving several neighborhoods, theaters, restaurants, drycleaners, hardware stores, and specialty shops.

Regional Center (Downtown): Downtown Spokane is a thriving neighborhood with a diversity of activities and a mix of uses. A variety of goods and services are available. The range of activities include cultural, governmental, hospitality, and residential uses. It serves as the primary economic and cultural center of the region. Emphasis is on providing new housing choices and neighborhood services for downtown residents, in addition to enhancing economic, cultural, and social opportunities for the city and

region. The Plan for a New Downtown adopted by the City Council in March 1999 serves as the plan for the Downtown Planning Area.

Center & Corridor Core: This designation allows commercial, office, and residential uses in designated Centers and Corridors. The type, intensity, and scale of uses allowed shall be consistent with the designated type of Center or Corridor. This Comprehensive Plan designation will be implemented with the Land Use Code for Centers and Corridors.

~~[per Ord. #C-33240, effective 7-18-03]~~

The Ordinance references were removed throughout this Chapter as they are already listed at the beginning of the Comprehensive Plan.

Center & Corridor Transition: These areas are intended to provide a transition of mixed uses (office, small retail, and multi-family residential) between the Center & Corridor Core designations and existing residential areas. Office and retail uses are required to have residential uses on the same site. This Comprehensive Plan designation will be implemented with the Land Use Code for Centers and Corridors, Center and Corridor Type 4.

~~[per Ord. #C-33240, effective 7-18-03]~~

Heavy Industrial: This designation is intended to accommodate heavier industrial uses at locations where there is no interaction with residential uses.

Light Industrial: This designation is intended for those lighter industrial uses~~,~~ which produce little noise, odor, or smoke. River-oriented residential use is permitted in the light industrial designation.

General Commercial: The General Commercial designation includes a wide range of commercial uses. Everything from freestanding business sites or grouped businesses (shopping centers) to heavy commercial uses allowing outdoor sales and warehousing are allowed in this designation. Higher density residential use is also allowed. Commercial designated land is usually located at the intersection of or in strips along principal arterial streets. In locations where this designation is near residential areas, zoning categories should be implemented that limit the range of uses that may have detrimental impacts on the residential area. Existing commercial strips are contained at their current boundaries with no further expansion allowed.

Neighborhood Retail: The Neighborhood Retail designation recognizes the existence of small neighborhood-serving businesses in locations that are not larger than two acres and that lie outside designated centers and corridors. These locations are usually found along arterial streets, typically at the intersection of two arterials. In neighborhoods that are not served by a center or corridor, existing neighborhood businesses provide nearby residents access to goods and services.

To encourage the creation of mixed-use environments that attract growth in centers, no new neighborhood retail locations should be designated outside of a center. Further, business expansion at existing locations should be contained within the boundaries occupied by the existing designation. Business infill within these boundaries is also allowed.

Businesses that are neighborhood-serving and pedestrian-oriented are encouraged in neighborhood retail locations. Buildings should be oriented to the street and provide convenient and easily identifiable side-walk entries to encourage pedestrian access. Parking lots should not dominate the frontage and should be located behind or on the side of buildings. Drive-through facilities, including gas stations and similar auto-oriented uses tend to provide services to people who live outside the surrounding neighborhood and should be allowed only along principal arterials. Residential uses should be permitted in these areas. Residences may be in the form of single-family homes on individual lots, upper-floor apartments above business establishments, or other higher density residential uses.

Neighborhood Mini-Center: This designation allows the same uses as Neighborhood Retail. Higher density residential use is encouraged in these areas.

The Neighborhood Mini-Center designation recognizes the existence of small neighborhood-serving businesses in locations that are two to five acres in size that lie outside centers and corridors designated on the land use plan map. Similar to neighborhood retail, the neighborhood mini-center designation consists

of small, freestanding businesses usually sited at the intersection of or along arterial streets. Another characteristic of this designation is the greatly restricted potential for redevelopment of the surrounding area to support a full neighborhood center. Consequently, the mini-center designation limits mixed-use development to the boundaries of the existing mini-center designation.

Mini-center locations are encouraged to become small, mixed-use centers with residential use as a major component. Residential use adds market demand for neighborhood business and enables enhanced transit service to these locations. Shared-use parking arrangements are encouraged to increase the development intensity of the site for both residential and commercial uses.

This designation allows the same uses as the neighborhood retail designation. No new drive-through facilities, including gas stations and similar auto-oriented uses, should be allowed except along principal arterial streets. Buildings should be oriented to the street to encourage walking by providing easy pedestrian connections. Parking lots should not dominate the frontage and should be located behind or on the side of buildings.

Office: The Office designation is usually freestanding small office sites and larger sites with two or more buildings located along arterial streets or intersections or as a buffer adjacent to residential areas. Higher intensity office areas should be located around downtown Spokane~~ in the North Bank and Medical District shown in the Downtown Plan.~~

Institutional: The Institutional designation includes uses such as middle and high schools, colleges, universities, and large governmental facilities. The institution designation on the Land Use Plan map is a general boundary. It is intended to show where institutional uses are located without defining specific boundaries of institutional development.

Residential 15+: This designation allows higher density residential use at a density of 15 or more units per acre or more.

Residential 15-30: This designation allows higher density residential use at a density of 15 to 30 units per acre.

Residential 10-20: This designation allows single-family residences or two-family residences on individual lots or attached (zero-lot line) single-family residences. The allowed density is a minimum of 10 and a maximum of 20 units per acre. Allowed structure types are single-family residences or two-family residences on individual lots or attached (zero-lot line) single-family residences. Other residential structure types may be permitted through approval of a Planned Unit Development or other process identified in the development regulations.

Residential 4-10: This designation allows single-family residences, and attached (zero-lot line) single-family residences. The allowed density is a minimum of four units and a maximum of ten units per acre. Allowed structure types are single-family residences, attached (zero-lot line) single-family residences, or two-family residences in appropriate areas. Other residential structure types may be permitted through approval of a Planned Unit Development or other process identified in the development regulations.

Agriculture: The agricultural designation is applied to agricultural lands of local importance in the Urban Growth Area. Uses planned for agricultural areas include: farming, green house farming, single-family residence, and minor structures used for sales of agricultural products produced on the premises. Caretakers' quarters associated with the agricultural activity may be permitted as an accessory use when a single-family residence is located on the parcel.

Conservation Open Space: The Conservation Open Space land use category includes areas that are publicly owned, not developed, and designated to remain in a natural state. The purpose of this category is to protect areas with high scenic value, environmentally sensitive conditions, historic or cultural values, priority animal habitat, and/or passive recreational features. It is expected that improvements would be limited to those supporting preservation or some passive recreation activities, like soft trails and wildlife viewpoints.

Potential Open Space: The Potential Open Space land use category identifies areas that are not currently publicly owned, not developed, and designated to remain in a natural state. The purpose and types of improvements in this category are the same as the Conservation Open Space category.

Open Space: This designation includes major publicly or privately owned open space areas, such as golf courses, major parks and open space areas, and cemeteries. These areas usually have facilities for active and passive recreation and include paved and unpaved roads, parking lots, hard surface trails, and buildings and facilities that support activities occurring in the open space area.

Mining: Mining areas are primarily devoted to sand, gravel, rock or clay production. Related products such as concrete, asphalt and brick are also produced.

The following table, LU 2, "Description of Land Use Designations," provides the names of the land use map designations, a description of the typical land uses found in each designation, and some of the applicable development standards. The table is followed by the Land Use Plan map which shows the location of the various land use designations that are described in the following table:

TABLE LU 2 DESCRIPTION OF LAND USE DESIGNATIONS

Land Use Designations	Typical Land Use	Minimum Density (units per acre)	Maximum Density (units per acre)
Heavy Industrial	Heavier Industrial uses. No residential uses		
Light Industrial	Light industrial uses, limited commercial and residential uses.		
General Commercial	Commercial and residential uses, warehouses.		
Regional Center (Downtown)	Variety of goods, services, cultural, governmental, hospitality, and residential uses. Downtown plan provides detail of planning for this area.		
Neighborhood Retail	Neighborhood-Serving Business and residential use. Maximum containment area of two acres.		30
Neighborhood Mini-Center	Same uses as Neighborhood Retail.		30
Office	Offices and residential use.		
Institutional	Includes uses such as middle and high schools, colleges, universities, and large governmental facilities.	Same standards as designation in which institution is located or as allowed by discretionary permit approval.	
Residential 15+	Higher density residences. ~~No medical office or other office use allowed.~~ *This sentence was deleted by staff to be consistent with the SMC.*	15	
Residential 15-30	Higher density residences.	15	30
Residential 10-20	Attached or detached single-family and two-family residences.	10	20
Residential 4-10	Attached or detached single-family residences.	4	10
Agriculture	Agricultural lands of local importance.		
Conservation Open Space	Areas that are publicly owned, not developed and designated to remain in a natural state.		

Potential Open Space	Areas that are not currently publicly owned, not developed and expected to remain in a natural state.		
Open Space	Major publicly or privately owned open space areas such as golf courses, major parks and open space areas, and cemeteries.		
Neighborhood Center	Neighborhood-oriented commercial uses, offices, mixed-type housing, parks, civic uses in a master-planned, mixed-use setting.	15	32 in the core, 22 at the perimeter
District Center	Community-oriented commercial uses, offices, mixed-type housing, parks, civic uses in a master-planned, mixed-use setting.	15	44 in the core, 22 at the perimeter
Corridor	Community-oriented commercial uses, mixed-type housing in a master-planned, mixed-use setting.	15	44 in the core, 22 at the perimeter
Employment Center	Major employment uses, community-oriented commercial uses, mixed-type housing in a master-planned, mixed-use setting.	15	44 in the core, 22 at the perimeter
Center & Corridor Core	Commercial, office and residential uses consistent with type of designated Center and Corridor. ~~[per Ord. #C-33240, effective 7-18-03]~~		
Center & Corridor Transition	Office, small retail, and multi-family residential uses. Office and retail uses are required to have residential uses on the same site. ~~[per Ord. #C-33240, effective 7-18-03]~~		

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Part V

Chapter 3 – Land Use
FORMATTED

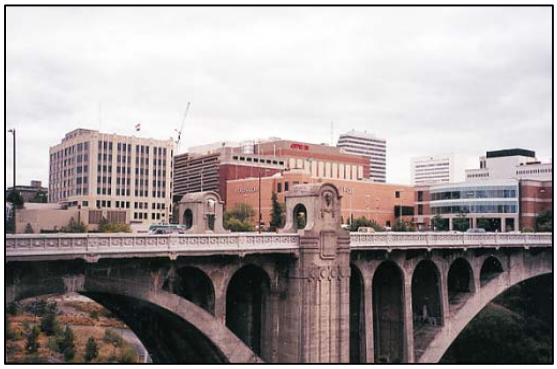
3.1 INTRODUCTION

Planning History

Spokane has a long history of planning. The first subdivision regulations were adopted in 1906, and the first zoning ordinance passed in 1929. The City Plan Commission was established by a City Charter amendment in 1917 to, "investigate and make recommendations to the City Council on all matters pertaining to the living conditions of the city, and betterment of facilities, for doing public and private business therein, the elimination of slums, the correction of unhealthful housing conditions to further its growth along consistent, comprehensive and permanent plans."

From these early beginnings, planning in Spokane has continued to grow in significance and usefulness. The first land use plan, a report including maps and policies, was adopted in 1968 as the official guide for development in Spokane. A new land use plan was adopted in 1983. Between 1982 and 1995, neighborhood plans were adopted for fifteen city neighborhoods, encompassing approximately 70 percent of the city's geography. In 2001 the first GMA compliant Comprehensive Plan was adopted by the City Council which superseded those previous plans. In addition to annual amendments, that plan went through a full update in 2006. All of these plans, including portions of the neighborhood plans mentioned above, continue to serve as foundation materials for the City's Comprehensive Plan.

In addition to these efforts, there have been many significant planning accomplishments since the adoption of the 2001 Comprehensive Plan. They include the Arterial Street Map Update, the Parks and Open Spaces Plan Update, the Fast Forward Spokane Downtown Plan Update, the 2015 Pedestrian Master Plan, and the Shoreline Master Plan.



3.2 VISION AND VALUES

Spokane volunteers working to develop the 2001 Comprehensive Plan identified important themes in relation to Spokane's current and future growth. A series of visions and values was crafted for each element of the Comprehensive Plan that describes specific performance objectives. From the Visions and Values document, adopted in 1996 by the City Council, the Comprehensive Plan's goals and policies were generated.

Land use is defined as the general location of various uses of land, population density, and building intensities.

Vision

"Growth will be managed to allow a mix of land uses that fit, support, and enhance Spokane's neighborhoods, protect the environment, and sustain the downtown area and broaden the economic base of the community."

Values

"The things that are important to Spokane's future include:

- Acquiring and preserving the natural areas inside and outside the city.
- Controlling urban sprawl in order to protect outlying rural areas.
- Developing and maintaining convenient access and opportunities for shopping, services, and employment.
- Protecting the character of single-family neighborhoods.
- Guaranteeing a variety of densities that support a mix of land uses.
- Utilizing current residential lots before developing raw land."

3.3 GOALS AND POLICIES

Goals and policies provide direction for planning and decision-making. Overall, they indicate desired directions, accomplishments, or aims in relation to the growth and development of Spokane. The land use goals and policies establish a framework for future growth and development of the city.

Much of the future growth will occur within concentrated areas in neighborhood centers, district centers, employment centers and corridors designated on the land use plan map. While this growth occurs in centers and corridors, established single-family residential neighborhoods will remain largely unchanged.

The centers and corridors contain a mix of uses, including higher density housing centered around or above retail and commercial establishments, office space and public and semi-public activities (parks, government and schools). In addition to these uses, areas designated as employment centers emphasize a strong employment component such as major offices or light industrial uses. Street patterns within the centers and surrounding neighborhoods enable residents to walk or bicycle for their daily service needs and to access each center's transit stop. Higher density housing within and around the centers supports business in the center and allows for enhanced transit service between centers, along corridors and to the downtown area. Center designations on the land use plan map may change to reflect neighborhood planning decisions.

Other important directives of the land use goals and policies include:

- Limiting commercial and higher density development outside centers and corridors to support growth and development of centers and corridors.
- Directing new higher density housing to centers and corridors and restricting this type of development in single-family areas.
- Using design guidelines to ensure that commercial buildings and higher density housing are compatible with existing neighborhood character in and around centers and corridors.

LU 1 CITYWIDE LAND USE

Goal: Offer a harmonious blend of opportunities for living, working, recreation, education, shopping, and cultural activities by protecting natural amenities, providing coordinated, efficient, and cost effective public facilities and utility services, carefully managing both residential and non-residential development and design, and proactively reinforcing downtown Spokane's role as a vibrant urban center.

Policies

LU 1.1 Neighborhoods

Utilize the neighborhood concept as a unit of design for planning housing, transportation, services, and amenities.

Discussion: Neighborhoods generally should have identifiable physical boundaries, such as principal arterial streets or other major natural or built features. Many neighborhoods have a neighborhood center that is designated on the land use plan map. The neighborhood center, containing a mix of uses, is the most intensive activity area of the neighborhood. It includes higher density housing mixed with neighborhood-serving retail uses, transit stops, office space, and public or semi-public activities, such as parks, government buildings, and schools.

A variety of compatible housing types are allowed in a neighborhood. The housing assortment should include higher density residences developed in the form of small scale apartments, townhouses, duplexes, and rental units that are accessory to single-family homes, as well as detached single-family homes.

A coordinated system of open space, nature space, parks, and trails should be furnished with a neighborhood park within walking distance or a short transit ride of all residences. A readily accessible elementary school should be available for neighborhood children. Neighborhood streets should be narrow and tree-lined with pedestrian buffer strips (planting strips) and sidewalks. They should be generally laid out in a grid pattern that allows easy access within the neighborhood. Alleys are used to provide access to garages and the rear part of lots. Pedestrian amenities like bus shelters, benches, and fountains should be available at transit stops.

LU 1.2 Districts

Identify districts as the framework for providing secondary schools, larger park and recreation facilities, and more varied shopping facilities.

Discussion: Districts generally are composed of logical and contiguous groupings of several neighborhoods. Within a district, the size and scale of schools, parks, and shopping facilities are larger because they serve a larger portion of the city. For example, within a district, there is usually a centrally located high school, one or two well-located middle schools, and one or more well-located community parks.

The core area of the district, known as the district center, is usually located at the intersection of arterial streets. District centers offer a wide range of retail and service activities including general merchandising, small specialty shops, personal and professional services, offices, food, and entertainment. They should also include plazas, green space, and a civic green or park to provide a focal point for the center. Urban design guidelines of the Comprehensive Plan or a neighborhood plan are used to guide architectural and site design to promote compatible mixed land uses. Housing density should decrease as the distance from the district center increases.

LU 1.3 Single-Family Residential Areas

Protect the character of single-family residential neighborhoods by focusing higher intensity land uses in designated centers and corridors.

Discussion: The city's residential neighborhoods are one of its most valuable assets. They are worthy of protection from the intrusion of incompatible land uses. Centers and corridors provide opportunities for complementary types of development and a greater diversity of residential densities. Complementary types of development may include places for neighborhood residents to work, shop, eat, and recreate. Development of these uses in a manner that avoids negative impacts to surroundings is essential. Creative mechanisms, including design standards, must be implemented to address these impacts so that potential conflicts are avoided.

LU 1.4 Higher Density Residential Uses

Direct new higher density residential uses to centers and corridors designated on the land use plan map.

Discussion: Higher density housing of various types is the critical component of a center. Without substantially increasing population in a center's immediate vicinity, there is insufficient market demand for goods and services at a level to sustain neighborhood-scale businesses. Higher density residential uses in centers range from multi-story condominiums and apartments in the middle to small-lot homes at the edge. Other possible housing types include townhouses, garden apartments, and housing over retail space.

To ensure that the market for higher density residential use is directed to centers, future higher density housing generally is limited in other areas. The infill of Residential 15+ and Residential 15-30 residential designations located outside centers are confined to the boundaries of existing multi-family residential designations where the existing use of land is predominantly higher density residential.

LU 1.5 Office Uses

Direct new office uses to centers and corridors designated on the land use plan map.

Discussion: Office use of various types is an important component of a center. Offices provide necessary services and employment opportunities for residents of a center and the surrounding neighborhood. Office use in centers may be in multi-story structures in the core area of the center and transition to low-rise structures at the edge.

To ensure that the market for office use is directed to centers, future office use is generally limited in other areas. The Office designations located outside centers are generally confined to the boundaries of existing office designations. Office use within these boundaries is allowed outside of a center.

The Office designation is also located where it continues an existing office development trend and serves as a transitional land use between higher intensity commercial uses on one side of a principal arterial street and a lower density residential area on the opposite side of the street. Arterial frontages that are predominantly developed with single-family residences should not be disrupted with office use. For example, office use is encouraged in areas designated Office along the south side of Francis Avenue between Cannon Street and Market Street to a depth of not more than approximately 140 feet from Francis Avenue.

Drive-through facilities associated with offices such as drive-through banks should be allowed only along a principal arterial street subject to size limitations and design guidelines. Ingress and egress for office use should be from the arterial street. Uses such as freestanding sit-down restaurants or retail are appropriate only in the office designation located in higher intensity office areas around downtown Spokane.

Residential uses are permitted in the form of single-family homes on individual lots, upper-floor apartments above offices, or other higher density residential uses.

LU 1.6 Neighborhood Retail Use

Direct new neighborhood retail use to neighborhood centers designated on the land use plan map.

Discussion: To ensure that neighborhood retail use is attracted to centers, future neighborhood retail development is directed to the centers. Neighborhood retail areas located outside centers are confined to the boundaries of the neighborhood retail designations.

The neighborhood retail designation recognizes the existence of small neighborhood-serving businesses in locations that are not larger than two acres and

that lie outside of designated centers. These locations are usually found along arterial streets, typically at the intersection of two arterials. In neighborhoods that are not served by a center, existing neighborhood businesses provide nearby residents access to goods and services.

No new neighborhood retail locations should be designated outside of a center. Further, business expansion at existing locations should be contained within the boundaries of the existing designation. Business infill within these boundaries is allowed

Businesses that are neighborhood-serving and pedestrian-oriented are encouraged in neighborhood retail locations. Buildings should be oriented to the street and provide convenient and easily identifiable sidewalk entries to encourage pedestrian access. Parking lots should not dominate the frontage and should be located behind or on the side of buildings. Drive-through facilities, including gas stations and similar auto-oriented uses, tend to provide services to people who live outside the surrounding neighborhood and should be allowed only along principal arterials and be subject to size limitations and design guidelines.

Residential uses are permitted in these areas. Residences may be in the form of single-family homes on individual lots, upper-floor apartments above business establishments, or other higher density residential uses.

LU 1.7 Neighborhood Mini-Centers

Create a neighborhood mini-center wherever an existing neighborhood retail area is larger than two acres.

Discussion: The neighborhood mini-center designation recognizes the existence of small neighborhood-serving businesses in locations that are two to five acres in size that lie outside centers and corridors designated on the land use plan map. However, some designated neighborhood mini-centers are over five acres in size because they are based on pre-existing zoning designations. Similar to neighborhood retail, the neighborhood mini-center designation consists of small, freestanding businesses usually sited at the intersection of or along arterial streets. Another characteristic of this designation is the greatly restricted potential for redevelopment of the surrounding area to support a full neighborhood center. Consequently, the mini-center designation limits mixed-use development to the boundaries of the existing mini-center designation.

Mini-center locations are encouraged to become small, mixed-use centers with higher density residential use as a major component. Residential use adds market demand for neighborhood business and enables enhanced transit service to these locations. Shared-use parking arrangements are encouraged to increase the development intensity of the site for both residential and commercial uses.

This designation allows the same uses as the neighborhood retail designation. No new drive-through facilities, including gas stations and similar auto-oriented uses, should be allowed except along principal arterial streets where they should be subject to size limitations and design guidelines. Buildings should be oriented to the street to encourage walking by providing easy pedestrian connections. Parking lots should not dominate the frontage and should be located behind or on the side of buildings.

New mini-center locations may be established through a neighborhood planning process. They should be separated by at least one-mile from other neighborhood serving business areas and should not exceed five acres in size. To provide convenient accessibility from the surrounding neighborhood, new mini-centers should be located at the intersection of arterial streets.

LU 1.8 General Commercial Uses

Contain general commercial areas within the boundaries occupied by existing business designations and within the boundaries of designated centers and corridors.

Discussion: General commercial areas provide locations for a wide range of commercial uses. Typical development in these areas includes freestanding business sites and larger grouped businesses (shopping centers). Commercial uses that are auto-oriented and include outdoor sales and warehousing are also allowed in this designation. Land designated for general commercial use is usually located at the intersection of or in strips along principal arterial streets. In many areas such as along Northwest Boulevard, this designation is located near residential neighborhoods.

To address conflicts that may occur in these areas, zoning categories should be implemented that limit the range of uses, and site development standards should be adopted to minimize detrimental impacts on the residential area. Existing commercial strips should be contained within their current boundaries with no further extension along arterial streets allowed.

Recognizing existing investments by both the City of Spokane and private parties, and given deference to existing land use patterns, an exception to the containment policy may be allowed by means of a comprehensive plan amendment to expand an existing commercial designation, (Neighborhood Retail, Neighborhood Mini-Center, or General Commercial) at the intersection of two principal arterial streets or onto properties which are not designated for residential use at a signalized intersection of at least one principal arterial street which as of September 2, 2003, has traffic at volumes greater than 20,000 vehicular trips a day. Expansion of the commercial designation under this exception shall be limited to property immediately adjacent to the arterial street and the subject intersection and may not extend more than 250 feet from the center of the intersection unless a single lot, immediately adjacent to the subject intersection and in existence at the time this comprehensive plan was

initially adopted, extends beyond 250 feet from the center of the intersection. In this case the commercial designation may extend the length of that lot but in no event should it extend further than 500 feet or have an area greater than three acres.

If a commercial designation (Neighborhood Retail, Neighborhood Mini-Center, or General Commercial) exists at the intersection of two principal arterials, a zone change to allow the commercial use to be extended to the next street that runs parallel to the principal arterial street may be allowed. If there is not a street that runs parallel to the principal arterial, the maximum depth of commercial development extending from the arterial street shall not exceed 250 feet.

Areas designated general commercial within centers and corridors are encouraged to be developed in accordance with the policies for centers and corridors. Through a neighborhood planning process for the center, these general commercial areas will be designated in a land use category that is appropriate in the context of a center and to meet the needs of the neighborhood.

Residential uses are permitted in these areas. Residences may be in the form of single-family homes on individual lots, upper-floor apartments above business establishments, or other higher density residential uses.

LU 1.9 Downtown

Develop city wide plans and strategies that are designed to ensure a viable, economically strong downtown area.

Discussion: Downtown Spokane, designated as the regional center, is a top community priority. Its wellbeing influences the entire region via employment, revenue generation, and transit. It should be a thriving regional center with a diversity of activities and a mix of uses so that it is alive and vibrant night and day. The mix of uses must include residential (high, medium and low-income), office, entertainment, retail and parking. It should be developed as a unique collection of businesses, neighborhoods and open spaces with a vision and a plan to which all stakeholders contribute. Major land use changes within the city should be evaluated to identify potential impacts on Downtown.

LU 1.10 Industry

Provide a variety of industrial locations and site sizes for a variety of light and heavy industrial development and safeguard them from competing land uses.

Discussion: Planned industrial locations should be free from critical areas, not subject to conflicting adjacent land uses, readily accessible to adequate transportation, utility, and service systems, and convenient to the labor force.

Commercial and office uses have historically been permitted in most areas that are designated for industrial use. Continuation of this practice may lead to the displacement of the vital industrial lands needed for the economic vitality of the city. The industrial lands inventory in the city and the urban growth area should be evaluated to determine which industrial lands should be preserved for exclusive industrial use and which areas should continue to allow commercial use.

In most cases, residential use is not appropriate in the industrial designation because of off-site impacts generated by industrial uses and the lack of residential amenities in these areas. However, river-oriented residential use is allowed in areas along the Spokane River where residents can take advantage of the river amenity. Residential uses should be carefully designed to be compatible with industrial uses. This compatibility may be maintained by using slope to other means or separate uses, and through buffers, landscaping, setbacks, fencing or other appropriate measures. The intent is to avoid conflicts between residential and industrial uses permitted in these areas.

LU 1.11 Agriculture

Designate areas for agriculture lands that are suited for long-term agricultural production.

Discussion: The agricultural designation is applied to agricultural lands of local importance in the Urban Growth Area. These areas have historically been farmed, contain highly productive agricultural soils (at least SCS Class II soils or designated prime agriculture lands as defined by the Natural Resource Conservation Service (NRCS) United States Department of Agriculture), and have large enough parcel sizes for productive farming. These areas have been determined in consultation with soil scientists from the National Resource Conservation Service. They are expected to remain agriculture for at least the next twenty years. Uses planned for agricultural areas include: farming, green house farming, single-family residence, and minor structures used for sales of agricultural products produced on the premises. Caretakers' quarters associated with the agricultural activity may be permitted as an accessory use when a single-family residence is located on the parcel.

Uses adjacent to designated agricultural lands, both inside and outside the city, should be compatible with farm uses. This compatibility may be maintained by limiting uses or density, by using slope or other means to separate uses, and through buffers, setbacks, fencing or other appropriate measures. Another method of lessening conflicts between uses is to give notice to nearby properties that agricultural operations will take place nearby. The Growth Management Act requires that local governments include a notice on subdivisions, development permits and building permits within 500 feet of an agricultural area that incompatible uses may occur on nearby land. A third way of reducing conflicts between uses is a right to

farm law. This type of law gives farmers some protection against nuisance lawsuits when conducting traditional agricultural activities. While these laws are common in counties, they are uncommon in cities. Spokane should study whether such a law could work successfully within the city.

To protect and preserve agricultural designated land, clustering of residential building sites shall be required as part of the subdivision approval process. Through the planned unit development (PUD) process, land in the Agriculture designation may be developed at a density of up to 10 units per acre. Clustering the allowable units is required so that structures located on agricultural designated parcels are situated in a manner that preserves as much land as possible for the agricultural operation.

A transfer of development rights program or purchase of development rights program should be developed to encourage the preservation of agricultural lands inside the urban growth area.

LU 1.12 Public Facilities and Services

Ensure that public facilities and services systems are adequate to accommodate proposed development before permitting development to occur.

Discussion: Chapter 5, Capital Facilities and Utilities, ensures that necessary public facilities and services are available at the time a development is ready for occupancy without decreasing current service levels below locally established minimum standards.

The following facilities must meet adopted level of service standards and be consistent with the concurrency management system: fire protection, police protection, parks and recreation, libraries, public sewer, public water, solid waste disposal and recycling, transportation, and schools.

When development or redevelopment occurs, it is also important that adequate provision is made for stormwater drainage facilities, paved streets, sidewalks, street lighting, traffic and access control, circulation, off-street parking and loading facilities, transit, bicycle and pedestrian facilities, and other public improvements made necessary by individual developments.

LU 1.13 Parks and Open Spaces

Develop funding mechanisms, incentives, and other methods to procure land for formal parks and/or natural open space in existing and new neighborhoods based upon adopted standards of the Comprehensive Plan.

LU 1.14 Nonconforming Uses

Avoid the creation of large areas of nonconforming uses at the time of adoption of new development regulations.

LU 1.15 Airfield Influence Areas

Prohibit the siting of land uses that are incompatible with aviation operations in the Airfield Influence Areas designated on Comprehensive Plan maps, and contain residential Comprehensive Plan designations and zoning in the Airfield Influence Areas to their existing locations not allowing for expansion or increases in residential density.

Discussion: Aviation facilities are a functionally and economically vital part of the community. The Federal Aviation Administration's Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace, establishes standards for determining obstructions to the airspace necessary for safe aircraft operations. Part 77 regulations define a set of airspace protection surfaces referred to as "imaginary surfaces." which may not be penetrated by any structures or natural features. However, the height of development is not the only characteristic that can cause it to be incompatible with aviation facilities. Areas surrounding these facilities are impacted by noise and safety concerns. RCW 36.70.547 General Aviation Airport mandates; "Every county, city, and town in which there is located a general aviation airport that is operated for the benefit of the general public, whether publicly owned or privately owned public use, shall, through its comprehensive plan and development regulations, discourage the siting of incompatible uses adjacent to such general aviation airport." Air Field operators prepare and maintain Master Plans with the guidance of the Federal Aviation Administration (FAA) or the Department of Defense (DOD). The Master Plans are used to identify Airfield Influence Areas based on their proximity to an airfield, air traffic patterns, relative risk of an accident or current or anticipated levels of aviation generated noise. The Airfield Influence Areas are designated on Comprehensive Plan maps.

Residential uses and uses generally associated with residential uses such as schools and religious institutions are highly sensitive to aviation operation impacts. Other uses that concentrate a large number of people in a small area, endanger critical community infrastructure or create hazards for air traffic are also incompatible. Because of their low building occupancies and similar impacts on adjoining properties industrial uses are generally considered to be compatible with aviation facilities. In order to avoid an increase in potential conflicts between residents and airfield operations no additional land within the Airfield Influence Areas shall be designated for residential uses or other uses that have a high congregation of people. Existing residential designations shall not be changed to a higher density designation. Residential uses are prohibited in Commercial and Industrial designations. Existing Industrial designations are to be preserved and industrial uses that complement

aviation facilities encouraged. Airfield Overlay Zones found in the City's development code shall only allow commercial and industrial uses that do not conflict with aircraft operations.

LU 2 PUBLIC REALM ENHANCEMENT

Goal: Encourage the enhancement of the public realm.

Policies

LU 2.1 Public Realm Features

Encourage features that improve the appearance of development, paying attention to how projects function to encourage social interaction and relate to and enhance the surrounding urban and natural environment.

Discussion: The "public realm" is the public or private area where people interact with their surroundings or other people. The "public realm" is affected by the appearance, use, and attractiveness of development and how it functions. It is important to design buildings to maintain compatibility with surrounding development, and to design sites that provide for pathways, attractive and functional landscaping, properly proportioned open spaces, and other connecting features that facilitate easy access between public and private places.

LU 2.2 Performance Standards

Employ performance and design standards with sufficient flexibility and appropriate incentives to ensure that development is compatible with surrounding land uses.

Discussion: Performance and design standards should address, among other items, traffic and parking/loading control, structural mass, open space, green areas, landscaping, and buffering.

In addition, they should address safety of persons and property, as well as the impacts of noise, vibration, dust, and odors. An incentive system should be devised that grants bonuses, such as increased building height, reduced parking, and increased density, in exchange for development that enhances the public realm.

LU 3 EFFICIENT LAND USE

Goal: Promote the efficient use of land by the use of incentives, density and mixed-use development in proximity to retail businesses, public services, places of work, and transportation systems.

Policies

LU 3.1 Coordinated and Efficient Land Use

Encourage coordinated and efficient growth and development through infrastructure financing and construction programs, tax and regulatory incentives, and by focusing growth in areas where adequate services and facilities exist or can be economically extended.

Discussion: Future growth should be directed to locations where adequate services and facilities are available. Otherwise, services and facilities should be extended or upgraded only when it is economically feasible to do so.

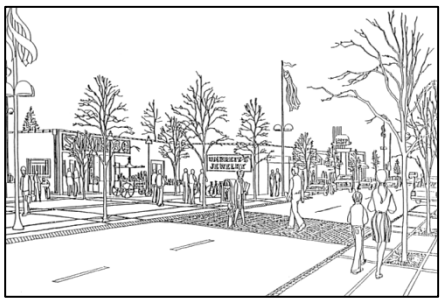
The centers and corridors designated on the land use plan map are the areas of the city where incentives and other tools should be used to encourage infill development, redevelopment and new development. Examples of incentives the city could use include assuring public participation, using public facilities and lower development fees to attract investment, assisting with project financing, zoning for mixed-use and higher density development, encouraging rehabilitation, providing in-kind assistance, streamlining the permit process, providing public services, and addressing toxic contamination, among other things.

LU 3.2 Centers and Corridors

Designate centers and corridors (neighborhood scale, community or district scale, and regional scale) on the land use plan map that encourage a mix of uses and activities around which growth is focused.

Discussion: Suggested centers are designated where the potential for center development exists. Final determination is subject to a neighborhood planning process.

Neighborhood Center



Neighborhood centers designated on the Land Use Plan map have a greater intensity of development than the surrounding residential areas. Businesses primarily cater to neighborhood residents, such as convenience businesses and services. Drive-through facilities, including gas stations and similar auto-oriented uses tend to provide services to people living outside the surrounding neighborhood and should be allowed only along principal arterials and be subject to size limitations and design guidelines. Uses such as a day care center, a church, or a school may also be found in the neighborhood center.

Businesses in the neighborhood center are provided support by including housing over ground floor retail and office uses. The most dense housing should be focused in and around the neighborhood center. Density is high enough to enable frequent transit service to a neighborhood center and to sustain neighborhood businesses. Housing density should decrease as the distance from the neighborhood center increases. Urban design guidelines for Centers and Corridors, located in the Spokane Municipal Code, are used to guide architectural and site design to promote compatible, mixed land uses, and to promote land use compatibility with adjoining neighborhoods.

Buildings in the neighborhood center are oriented to the street. This encourages walking by providing easy pedestrian connections, by bringing activities and visually interesting features closer to the street, and by providing safety through watchful eyes and activity day and night. Parking lots should not dominate the frontage of these pedestrian-oriented streets, interrupt pedestrian routes, or negatively impact surrounding neighborhoods. Parking lots should be located behind or on the side of buildings as a rule.

To promote social interaction and provide a focal point for the center, a central gathering place, such as a civic green, square, or park, should be provided. To identify the center as the major activity area of the neighborhood, it is important to encourage buildings in the core area of the neighborhood center to be taller. Buildings up to three stories are encouraged in this area.

Attention is given to the design of the circulation system so pedestrian access between residential areas and the neighborhood center is provided. To be successful, centers need to be integrated with transit. Transit stops should be conveniently located near commercial and higher density residential uses, where transit service is most viable.

The size and composition of neighborhood centers, including recreation areas, vary by neighborhood, depending upon location, access, neighborhood character, local desires, and market opportunities. Neighborhood centers should be separated by at least one mile (street distance) or as necessary to provide economic viability. As a general rule, the amount of commercial space and percent devoted to office and retail should be proportional to the number of housing units in the neighborhood. The size of individual commercial business buildings should be limited to assure that the business is truly neighborhood serving. The size of the neighborhood center, including the higher density housing surrounding the center, should be approximately 15 to 25 square blocks. The density of housing should be about 32 units per acre in the core of the neighborhood center and may be up to 22 units per acre at the perimeter.

The following locations are designated as neighborhood centers on the land use plan map:

- Indian Trail and Barnes;
- South Perry;
- Grand Boulevard/12th to 14th;
- Garland;
- West Broadway;
- Lincoln and Nevada;
- Fort George Wright Drive and Government Way.

District Center

District centers are designated on the land use plan map. They are similar to neighborhood centers, but the density of housing is greater (up to 44 dwelling units per acre in the core area of the center) and the size and scale of schools, parks, and shopping facilities are larger because they serve a larger portion of the city. As a general rule, the size of the district center, including the higher density housing surrounding the center, should be approximately 30 to 50 square blocks.

As with a neighborhood center, new buildings are oriented to the street and parking lots are located behind or on the side of buildings whenever possible. A central gathering place, such as a civic green, square, or park is provided. To identify the district center as a major activity area, it is important to encourage buildings in the core area of the district center to be taller. Buildings up to five stories are encouraged in this area

The circulation system is designed so pedestrian access between residential areas and the district center is provided. Frequent transit service, walkways, and bicycle paths link district centers and the downtown area.

The following locations are designated as district centers on the land use plan map:

- Shadle – Alberta and Wellesley;
- Lincoln Heights – 29th and Regal;
- 57th and Regal;
- Grand District
- Southgate

Employment Center

Employment centers have the same mix of uses and general character features as neighborhood and district centers but also have a strong employment component. The employment component is expected to be largely non-service related jobs incorporated into the center or on land immediately adjacent to the center.

Employment centers vary in size from 30 to 50 square blocks plus associated employment areas. The residential density in the core area of the employment center may be up to 44 dwelling units per acre. Surrounding the center are medium density transition areas at up to 22 dwelling units per acre.

The following locations are designated as employment centers on the land use plan map:

- East Sprague – Sprague and Napa;
- North Foothills Employment Center;
- Maxwell and Elm;
- Holy Family;
- North Nevada, between Westview and Magnesium.
- Trent and Hamilton

Corridors

Corridors are areas of mixed land use that extend no more than two blocks in either direction from the center of a transportation corridor.

Within a corridor, there is a greater intensity of development in comparison to the surrounding residential areas. Housing at a density up to 44 units per acre and employment densities are adequate to support frequent transit service. The density of housing transitions to a lower level (up to 22 units per acre) at the outer edge of the corridor. A variety of housing styles, apartments, condominiums, rowhouses, and houses on smaller lots are allowed. A full range of retail services, including grocery stores serving several neighborhoods, theaters, restaurants, dry-cleaners, hardware stores, and specialty shops are also allowed. Low intensity, auto-dependent uses (e.g., lumber yards, automobile dealers, and nurseries) are prohibited.

Corridors provide enhanced connections to other centers, corridors, and downtown Spokane. To accomplish this, it is important to make available safe, attractive transit stops and pedestrian and bicycle ways. The street environment for pedestrians is much improved by placing buildings with multiple stories close to the street with wide sidewalks and street trees, attractive landscaping, benches, and frequent transit stops. Parking lots should not dominate the frontage of these pedestrian-oriented streets, interrupt pedestrian routes, or negatively impact surrounding neighborhoods. Parking lots should be located behind or on the side of buildings whenever possible.

The following locations are designated as corridors on the land use plan map:

- North Monroe Street;
- Hillyard Business Corridor;
- Hamilton Street Corridor

Regional Center

Downtown Spokane is the regional center and is the primary economic, cultural and social center of the region. With the creation and development of the University District on the east end of Downtown, it is also a major academic hub with the collaboration of multiple institutions of higher education. Downtown contains the highest density and intensity of land use, and continues to be a targeted area for additional infill housing opportunities and neighborhood amenities to create a more livable experience.

The following location is designated as the regional center on the land use plan map:

- Downtown Spokane

LU 3.3 Planned Neighborhood Centers

Designate new centers or corridors in appropriate locations on the land use plan map through a city-approved planning process.

Discussion: The comprehensive plan recognizes that centers and corridors are the most appropriate venue for the location of commercial and higher density residential uses. In some areas of the city, there may be a need to establish a center or corridor. The exact location, boundaries, size, and mix of land uses in a potential neighborhood center should be determined through a city-approved sub-area planning process that is inclusive of all interested stakeholders. This process may be initiated by the city at the request of a neighborhood or private interest. Objective criteria should include:

- Existing and planned density;
- Amount of commercial land needed to serve the neighborhood;
- Capital facility investments and access to public transit; and
- Other characteristics of a neighborhood center as provided in this plan, or as further refined.

LU 3.4 Planning for Centers and Corridors

Utilize basic criteria for growth planning estimates and, subsequently, growth targets for centers, and corridors.

Discussion: Growth planning estimates and growth targets for centers and corridors should be based on:

- Availability of infrastructure;

- Public amenities and related facilities and services capacity for residential and commercial development;
- Existing and proposed residential densities and development conditions;
- Accessibility of transit; and,
- Density goals for centers and corridors.

LU 3.5 Mix of Uses in Centers

Achieve a proportion of uses in centers that will stimulate pedestrian activity and create mutually reinforcing land uses.

Discussion: Neighborhood, District, and Employment Centers are designated on the land use plan maps in areas that are substantially developed. New uses in centers should complement existing on-site and surrounding uses, yet seek to achieve a proportion of uses that will stimulate pedestrian activity and create mutually reinforcing land use patterns. Uses that will accomplish this include public, core commercial/office and residential uses.

All centers are mixed-use areas. Some existing uses in designated centers may fit with the center concept; others may not. Planning for centers should first identify the uses that do not fit and identify sites for new uses that are missing from the existing land use pattern. Ultimately, the mix of uses in a center should seek to achieve the following minimum requirements:

TABLE LU 1 – MIX OF USES IN CENTERS

Land Use	Neighborhood Center	District and Employment Center
Public	10 percent	10 percent
Commercial/Office	20 percent	30 percent
Higher-Density Housing	40 percent	20 percent

Note: All percentage ranges are based on site area, rather than square footage of building area.

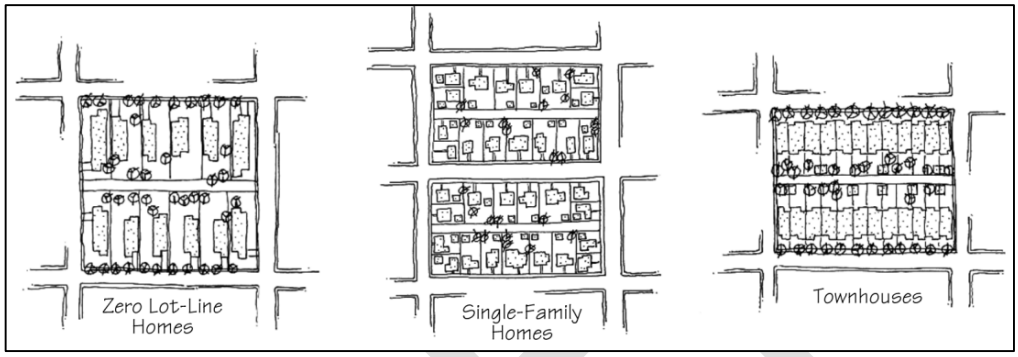
This recommended proportion of uses is based on site area and does not preclude additional upper floors with different uses.

The ultimate mix of land uses and appropriate densities should be clarified in a site-specific planning process in order to address site-related issues such as community context, topography, infrastructure capacities, transit service frequency, and arterial street accessibility. Special care should be taken to respect the context of the site and the character of surrounding existing neighborhoods. The 10 percent public use component is considered a goal and should include land devoted to parks, plazas, open space, and public facilities.

LU 3.6 Compact Residential Patterns

Allow more compact and affordable housing in all neighborhoods, in accordance with design guidelines.

Discussion: Compact and affordable housing includes such choices as townhouses, accessory dwelling units (granny flats), live-work housing, triplexes, zero-lot line, starter, small-lot, and rowhouses.



LU 3.7 Maximum and Minimum Lot Sizes

Prescribe maximum, as well as minimum, lot size standards to achieve the desired residential density for all areas of the city.

Discussion: One of the ways to use the remaining usable land more efficiently is to increase the overall housing density. Increased density promotes efficient and cost-effective provision of city facilities, services, and transportation systems and enables the provision of affordable housing.

LU 3.8 Shared Parking

Encourage shared parking facilities for business and commercial establishments that have dissimilar peak use periods.

Discussion: Many businesses have different hours of the day during which they are most busy. Whereas a movie theater is occupied during the evening hours, an office building flourishes during the day. In this type of situation, there is an opportunity for shared parking. Shared parking lots consume less land and are a more efficient use of land compared to the construction of separate parking areas for each individual business.

LU 4 TRANSPORTATION

Goal: Promote a network of safe and cost effective transportation alternatives, including transit, carpooling, bicycling, pedestrian-oriented environments, and more efficient use of the automobile, to recognize the relationship between land use and transportation.

Policies

LU 4.1 Land Use and Transportation

Coordinate land use and transportation planning to result in an efficient pattern of development that supports alternative transportation modes consistent with the transportation chapter and makes significant progress toward reducing sprawl, traffic congestion, and air pollution.

Discussion: The GMA recognizes the relationship between land use and transportation. It requires a transportation element that implements, and is consistent with, the land use element. The transportation element must forecast future traffic and provide information on the location, timing, and capacity needs of future growth. It must also identify funding to meet the identified needs. If probable funding falls short of needs, the GMA requires the land use element to be reassessed to ensure that needs are met.

LU 4.2 Land Uses That Support Travel Options and Active Transportation

Provide a compatible mix of housing and commercial uses in neighborhood centers, district centers, employment centers, and corridors.

Discussion: This provides opportunities for people to use active forms of transportation to get to work and shopping, enables less reliance on automobiles, reduces commuting times and distances, makes mass transit more viable, and provides greater convenience for area residents while supporting physical activity.

LU 4.3 Neighborhood Through-Traffic

Create boundaries for new neighborhoods through which principal arterials should not pass.

Discussion: Principal arterials that bisect neighborhoods create undesirable barriers to pedestrian circulation and adversely impact adjoining residences. Whenever possible, principal arterials should be located on the outer edge of neighborhoods.

LU 4.4 Connections

Form a well-connected network which provides safe, direct and convenient access for all users, including pedestrians, bicycles, and automobiles, through site design for new development and redevelopment.

LU 4.5 Block Length

Create a network of streets that is generally laid out in a grid pattern that features more street intersections and shorter block lengths in order to increase street connectivity and access.

Discussion: Excessively long blocks and long local access residential streets result in fewer alternative routes for pedestrian and vehicle travel and generally result in increased vehicle speeds. A grid pattern featuring more street intersections and shorter blocks provides more alternative routes for pedestrian and vehicle travel and tends to slow traffic. Block lengths of approximately 250 to 350 feet on average are preferable, but should not exceed 660 feet in length (per Spokane Municipal Code). Environmental conditions such as topography or rock outcroppings might constrain these shorter block lengths in some areas.

LU 5 DEVELOPMENT CHARACTER

Goal: Promote development in a manner that is attractive, complementary, and compatible with other land uses.

Policies

LU 5.1 Built and Natural Environment

Ensure that developments are sensitive to the built and natural environment (for example, air and water quality, noise, traffic congestion, and public utilities and services), by providing adequate impact mitigation to maintain and enhance quality of life.

LU 5.2 Environmental Quality Enhancement

Encourage site locations and design features that enhance environmental quality and compatibility with surrounding land uses.

Discussion: Ensure the provision of adequate landscaping and other site design features that enhance the compatibility of development with the surrounding area.

LU 5.3 Off-Site Impacts

Ensure that off-street parking, access, and loading facilities do not adversely impact the surrounding area.

Discussion: Off-street parking, access, and loading facilities are usually associated with the development of higher density residential, office, and commercial uses. These features often have major impacts on single-family residential areas. The impacts are most significant when these facilities are next to or intrude between homes. When these facilities are accessory to a higher density residential or nonresidential use, they should be developed according to the same policies and

zoning regulations as govern the primary use. New parking lots should also have the same zoning classification as the primary use. In addition, these facilities should be developed to minimize adverse impacts to adjacent properties. All parking lots should be paved. Parking lots and loading areas should have appropriate buffers to fully screen them from adjacent, less intensive uses. Access to business and higher density residential sites should be controlled to avoid impacts on adjacent uses, pedestrian movement, and street functions.

LU 5.4 Natural Features and Habitat Protection

Ensure development is accomplished in a manner that protects significant natural features and wildlife habitat.

Discussion: Natural areas include environmentally sensitive areas, critical areas and buffers, trail corridors, areas with difficult topography, stands of trees, wildlife habitat, and other natural features. To encourage conservation of natural features and habitat protection, development regulations should be established that allow clustering of development at higher densities than otherwise allowed (consistent with overall density allowed for the site). If the minimum density cannot be achieved by clustering of development, exceptions to minimum residential density requirements may be permitted.

LU 5.5 Compatible Development

Ensure that infill and redevelopment projects are well-designed and compatible with surrounding uses and building types.

LU 6 ADEQUATE PUBLIC LANDS AND FACILITIES

Goal: Ensure the provision and distribution of adequate, well-located public lands and facilities throughout the city.

Policies

LU 6.1 Advance Siting

Identify, in advance of development, sites for parks, open space, wildlife habitat, police stations, fire stations, major stormwater facilities, schools, and other lands useful for public purposes.

Discussion: Attempts should be made to obtain or secure (e.g., by obtaining the right of first refusal) such sites as early as possible in the development of an area to ensure that the facilities are well located to serve the area and to minimize acquisition costs.

LU 6.2 Open Space

Identify, designate, prioritize, and seek funding for open space areas.

Discussion: The open space land use map designation consists of three major categories:

Conservation Open Space: Conservation Open Space includes areas that are publicly owned, not developed, and designated to remain in a natural state. It is intended to protect areas with high scenic value, environmentally sensitive conditions, historic or cultural values, priority animal habitats, and/or passive recreational features. It is expected that improvements in these areas would be limited to those supporting preservation or some passive recreation activities, like soft trails and wildlife viewpoints.

Potential Open Space: Potential Open Space includes areas that are not currently publicly owned, not developed, and designated to remain in a natural state. The purpose and types of improvements in this category are the same as the Conservation Open Space category. Public acquisition of land designated Potential Open Space is encouraged and may be accomplished by outright purchase, nature space tax incentives, Spokane County Conservation Futures funds, and other methods. Restrictions on the use of land designated Potential Open Space may not occur until the city or Spokane County acquires sufficient interest to prevent development of the lands. Otherwise, uses allowed in the Residential 4-10 designation may be allowed on land designated Potential Open Space.

Open Space: Open Space includes major publicly or privately owned open space areas, such as golf courses, major parks and open space areas, and cemeteries. These areas usually have facilities for active and passive recreation and include paved and unpaved roads, parking lots, hard surface trails, and buildings and facilities that support activities occurring in the open space area.

LU 6.3 School Locations

Work with the local school districts to identify school sites that are well-located to serve the service area and that are readily accessible for pedestrians and bicyclists.

Discussion: Schools are among the most important public facilities society provides for its citizens. Not only are they the centers of learning for children, but they serve as important focal points for all kinds of neighborhood activities. Their libraries and auditoriums often serve as neighborhood meeting places. The health and vitality of a neighborhood school is invariably a clear indicator of the health and vitality of the neighborhood itself.

An elementary or middle school should be centrally located within its service area to allow children to walk to school. The school should be located within or close to a designated center.

A high school should be centrally located within its service area so as to be easily accessible to vehicular and pedestrian traffic. High schools tend to generate high levels of traffic from student drivers, school personnel, and interscholastic events. To accommodate the higher levels of traffic, high schools should be located on an arterial street. They should also be located within or close to a designated center.

Most of Spokane is served by School District 81. Mead School District 354 serves an area within the northern city limits, and Cheney School District 360 covers an area within the city limits on the southwest side. The Mead, Cheney and Nine Mile School Districts also serve land within the urban growth area.

LU 6.4 City and School Cooperation

Continue the cooperative relationship between the city and school officials.

Discussion: The city has a modest role to play in school planning. Public schools are operated by local school districts and governed by state and federal laws and regulations. State funds provide the bulk of school finances. Some funds come from the federal government. School districts raise the rest from local property taxes. State laws set standards for service levels and facility development, such as site size and enrollment. They also specify funding methods. These laws thus perform much of the role of a functional plan for schools. School districts complete the remaining tasks of planning.

Nevertheless, there are important things the city can do. Through good planning, the city can ensure that the environments around existing and future school sites are conducive to their needs. The safety needs of school children and the need for school buildings to be appropriately accessible to their service areas should be considered. The city can certainly continue to work closely with school officials and neighborhoods to serve citizens.

In addition, the Growth Management Act requires cities and school districts to cooperate in capital facility planning. Future school sites are among the types of "lands needed for public purposes," which must be identified in a city's comprehensive plan. If a school district is to collect impact fees for new schools, the school facilities must be reflected in the city's Capital Facility Program (CFP).

Consideration should also be given to joint planning, which could include prioritization of sites for future school construction and preservation of historic sites.

LU 6.5 Schools as a Neighborhood Focus

Encourage school officials to retain existing neighborhood school sites and structures because of the importance of the school in maintaining a strong, healthy neighborhood.

LU 6.6 Shared Facilities

Continue the sharing of city and school facilities for neighborhood parks, recreation, and open space uses.

LU 6.7 Sharing and Programming Planning

Develop a joint plan for the city and school districts serving Spokane for sharing and programming school sites for common activities.

LU 6.8 Siting Essential Public Facilities

Utilize a process for locating essential public facilities that incorporates different levels of public review depending on facility scale and location.

Discussion: The Growth Management Act requires local governments to include a process for identifying and siting essential public facilities. Essential public facilities include those facilities that are typically difficult to site, such as airports, state education facilities and state or regional transportation facilities, state and local correctional facilities, solid waste handling facilities, and in-patient facilities including substance abuse facilities, mental health facilities, group homes, and secure community transition facilities.

In 2002, Spokane County adopted the Spokane County Regional Siting Process for Essential Public Facilities. It includes a siting review process, location analysis, and requirements for public involvement and is incorporated into City land use regulations. The Spokane Municipal Code (SMC) references that siting process.

LU 6.9 Facility Compatibility with Neighborhood

Ensure the utilization of architectural and site designs of essential public facilities that are compatible with the surrounding areas.

Discussion: It is important that essential public facilities enhance or improve the environment in which they are proposed. Cost considerations should be balanced with attempts to construct buildings and site features that are compatible with their surroundings.

LU 6.13 Signs

Ensure that any signs, directional/service or identification, are sized, constructed, and displayed in a manner that does not adversely affect the surrounding land uses.

LU 7 IMPLEMENTATION

Goal: Ensure that the goals and policies of the comprehensive plan are implemented.

Policies

LU 7.1 Regulatory Structure

Develop a land use regulatory structure that utilizes a variety of mechanisms to promote development that provides a public benefit.

Discussion: Incentives are one of the tools that can be used to encourage development that is beneficial to the public. For instance, a development may be allowed a higher residential density, greater lot coverage, or increased building height if there is a dedication of open space for public use or some other development feature that results in a direct benefit to the public.

The regulations should be predictable, reliable, and adaptable to changing living and working arrangements brought about by technological advancements. They should also be broad enough to encourage desirable development and/or redevelopment.

LU 7.2 Continuing Review Process

Develop a broad, community-based process that periodically reevaluates and directs city policies and regulations consistent with this chapter's Vision and Values.

LU 7.3 Historic Reuse

Allow compatible residential or commercial use of historic properties when necessary to promote preservation of these resources.

Discussion: Preservation of historic properties is encouraged by allowing a practical economic use, such as the conversion of a historic single-family residence to a higher density residential or commercial use. A public review process should be required for conversions to a use not allowed in the underlying zoning district. Special attention should be given to assuring that the converted use is compatible with surrounding properties and the zone in which the property is located. Recommendations from the Historic Landmarks Commission and the Historic Preservation Officer should be received by any decision-maker before a decision is made regarding the appropriateness of a conversion of a historic property.

LU 7.4 Sub-Area Planning Framework

Use the Comprehensive Plan for overall guidance and undertake more detailed sub-area and neighborhood planning in order to provide a forum for confronting and reconciling issues and empowering neighborhoods to solve problems collectively.

LU 8 URBAN GROWTH AREA

Goal: Maintain an urban growth area that includes areas and densities sufficient to accommodate the city's allocated population, housing and employment growth for the succeeding twenty-year period, including the accommodation of the medical, governmental, educational, institutional, commercial, and industrial facilities related to such growth, but that does not exceed the areas necessary to accommodate such growth.

Policies

LU 8.1 Role of Urban Growth Areas

Limit urban sprawl by encouraging development in urban areas where adequate public facilities already exist or where such facilities can be more efficiently provided.

Discussion: New growth should be directed to urban areas to allow for more efficient and predictable provision of adequate public facilities, to promote orderly transition of governance for urban areas, to reduce development pressure on rural lands, and to encourage redevelopment of existing urban areas.

LU 8.2 Joint Planning in Urban Growth Area

Plan with Spokane County for the unincorporated portions of the urban growth area.

Discussion: Work with Spokane County toward adoption of consistent land use designations and development standards in unincorporated urban growth areas in recognition that urban growth areas are the city's future annexation areas and will become the city's responsibility upon annexation.

LU 8.3 Review of Urban Growth Area

Review the urban growth area boundary in accordance with the requirements of the Growth Management Act and Countywide Planning Policies relative to the current Office of Financial Management's twenty-year population forecast and make adjustments, as warranted, to accommodate the projected growth.

Discussion: The City of Spokane and Spokane County should coordinate their periodic reviews of the urban growth area, reviewing the densities permitted within the city to determine the extent to which the urban growth occurring within Spokane County has located in the city and within the unincorporated portions of the urban growth area.

The review process should include conducting an inventory of the buildable land supply using the latest available data gathering and mapping techniques, including geographical information system (GIS) or newer technology.

LU 9 ANNEXATION

Goal: Support annexations that enhance effective and efficient government.

Policies

LU 9.1 Annexation Boundaries

Encourage annexations that create logical boundaries and reasonable service areas within the city's urban growth area, where the city has demonstrated the fiscal capacity to provide services.

Discussion: Rapid development and population growth frequently occur just outside City boundaries where property is less expensive and zoning laws may be less restrictive. Developments on the City's fringe create increased traffic congestion and the need for improved urban governmental services, including police and fire protection. These problems cross boundary lines and increase the City's cost of providing urban governmental services without corresponding revenues to cover the increased costs. The Growth Management Act seeks to reduce urban sprawl by encouraging development in urban areas where adequate public facilities already exist or where such facilities can be more efficiently provided and facilitates the annexation of urban areas through the coordinated comprehensive planning process it mandates.

As the City annexes territory, it should be guided by the following objectives:

1. Preservation of natural neighborhoods and communities;
2. Use of physical boundaries, including but not limited to bodies of water, highways, and land contours;
3. Creation and preservation of logical service areas; and
4. Adjustment of impractical municipal boundaries.

LU 9.2 Peninsula Annexation

Encourage and assist property owners in existing unincorporated "peninsulas" in the city's urban growth area to annex to the city.

Discussion: Unincorporated "peninsulas" are land areas of any size that are located outside of the city limits that have at least eighty percent of their boundaries contiguous to the city. RCW 35.13.182 et seq., allows the cities to resolve to annex

such areas (in existence before June 30, 1994) subject to referendum for forty-five days after passage following the adoption of the annexation ordinance.

LU 9.3 City Utilities

Require property owners requesting city utilities to annex or sign a binding agreement to annex when requested to do so by the city.

LU 9.4 Community Impacts

Evaluate all annexations on the basis of their short and long-term community impacts and benefits.

Discussion: If the annexation includes proposed development, consideration of the proposal should include an analysis of the short and long-term impacts on the neighborhood and city in terms of all services required.

LU 9.5 Funding Capital Facilities in Annexed Areas

Ensure that annexations do not result in a negative fiscal impact on the city.

Discussion: In general, property owners in annexing areas should fund the public facility improvements necessary to serve the area in a manner that is consistent with applicable City of Spokane policies and regulations. If the city determines that an area annexing to Spokane requires public facility improvements to correct health and safety related problems, the property owners within the annexed area should fund these improvements. If an area annexing to Spokane has public facilities that do not meet city standards and the property owners or residents want to improve the facilities to meet city standards, the property owners should fund those improvements, or the proportion of those improvements, that do not have a citywide benefit. Public facility improvements within annexed areas that have a citywide benefit should be considered for funding through city revenues as part of the city's capital facilities and improvements planning processes.

LU 9.6 Land Use and Zoning Designations Upon Annexation

Recognize the interests of the residents of the annexing area and, in the absence of specific policies and standards adopted by the City, honor the intent of adopted county plans and ordinances for areas proposed to be annexed.

Discussion: Spokane County's land use and zoning designations to the area are generally converted to The City Comprehensive Plan Land Use Plan Map and Official Zoning Map designations that are the most similar concurrently with an annexation.

LU 9.7 City Bonded Indebtedness

Require property owners within an annexing area to assume a share of the city's bonded indebtedness.

Discussion: When property is annexed to the city, it becomes subject to all city laws. It is also assessed and taxed in the same way as the property already in the city. As a result, annexed areas are required to help pay for the outstanding indebtedness of the city approved by voters prior to the effective date of the annexation.

LU 10 JOINT PLANNING

Goal: Support joint growth management planning and annexation requests, which best meet the Comprehensive Plan's development goals and policies.

Policies

LU 10.1 Land Use Plans

Prepare land use plans in cooperation with Spokane County for the urban growth area to ensure that planned land uses are compatible with adopted city policies and development standards at the time of annexation.

LU 10.2 Consistent Development Standards

Require utilities, roads, and services in the city's urban growth area to be built to city standards.

Discussion: Interlocal agreements are a mechanism that should be used to apply these standards to the urban growth area. Requiring these facilities to be built to city standards will assure that they meet city standards at the time of annexation of these areas to the city.

LU 10.3 Special Purpose Districts

Confer with affected special purpose districts and other jurisdictions to assess the impact of annexation prior to any annexation.

Discussion: Where possible, boundaries should be mutually resolved by the jurisdictions involved before any final action is taken on a formal annexation petition.

LU 10.4 Long Range Urban Growth Area Planning

Establish a forty-year planning horizon to address eventual expansion of UGAs beyond the twenty-year boundary required by the Growth Management Act.

Discussion: The purpose of the longer planning period is to ensure the ability to expand urban governmental services and avoid land use barriers to future expansion of the twenty-year UGA boundary. Within the urban reserve areas, densities and land use patterns should be established that do not preclude later subdivision to urban densities.

To identify urban reserve areas, it is necessary for the city and Spokane County to work together to identify the amount of land necessary to support the next 40 years

of growth. Factors that need to be considered include the ability to provide public services and facilities and carrying capacity issues, such as water quantity and air quality.

3.5 Description of Land Use Designations

Much of the future growth will occur in district centers, employment centers, neighborhood centers, and corridors. A key component of each of these focused growth areas is higher density housing centered around or above service and retail facilities. This enables residents near the center or corridor to walk or bicycle for their daily needs. Higher density housing also provides economic support for the businesses and allows for more efficient transit service along the corridor and between mixed-use centers and downtown Spokane.

Focusing growth results in a more compact urban form with less land being used at the fringe of the city. It provides city residents with more housing and transportation choices. New policies, regulations, and incentives allow mixed-use in designated centers and corridors and assure that these areas are designed to be compatible with surrounding lower density residential areas.

The land use designations and their general characteristics are as follows:

Neighborhood Center: The neighborhood center contains the most intensive activity area of the neighborhood. In addition to businesses that cater to neighborhood residents, activities such as a day care center, church, or school may be found in the center. Size and composition of the center vary depending upon location, access, neighborhood character, local desires, and market opportunities. Important elements to be included in the center are a civic green, square or park, and a transit stop. Buildings fronting on the square or green should be at least two or three stories in height with housing located above ground floor retail and office uses. Building height is stepped-down and density of housing is lower as distance from the center increases. The circulation system is designed to facilitate pedestrian access between residential areas and key neighborhood components.

District Center: District centers are similar to neighborhood centers except they are larger in scale and contain more intensive residential and commercial activities. Size and composition of the center vary depending upon location, access, neighborhood character, local desires, and market opportunities. District centers are usually located at the intersection of principal arterial streets or major transit hubs. To enhance the pedestrian environment, plazas, green space, or a civic green serve as an integral element of the district center. Higher density housing is found both within and surrounding the district center to help support business and transit. A circulation system, which facilitates pedestrian access between residential areas and the district center, is provided. District centers and downtown Spokane are linked by frequent transit service, walkways, and bikeways.

Employment Center: Employment centers have the same mix of uses and general character features as neighborhood and district centers but also have a strong

employment component. The employment component is expected to be largely non-service related jobs incorporated into the center or on land immediately adjacent to the center. Employment centers vary in size from thirty to fifty square blocks plus associated employment areas.

Corridor: The corridor concept focuses growth along transportation corridors, such as a major transit line. It is intended to allow improved transit service to daily activities. Housing and employment densities are increased along the corridor to support frequent transit service and business. Usually, corridors are no more than two blocks in depth along either side of the corridor. Safe, attractive transit stops and pedestrian and bicycle ways are provided. A variety of housing styles—apartments, condominiums, row-houses, and houses on smaller lots—are located in close proximity to the corridor. Important elements include multi-story buildings fronting on wide sidewalks with street trees, attractive landscaping, benches, and frequent transit stops. A full range of services are provided including grocery stores serving several neighborhoods, theaters, restaurants, drycleaners, hardware stores, and specialty shops.

Regional Center (Downtown): Downtown Spokane is a thriving neighborhood with a diversity of activities and a mix of uses. A variety of goods and services are available. The range of activities include cultural, governmental, hospitality, and residential uses. It serves as the primary economic and cultural center of the region. Emphasis is on providing new housing choices and neighborhood services for downtown residents, in addition to enhancing economic, cultural, and social opportunities for the city and region. The Plan for a New Downtown adopted by the City Council in March 1999 serves as the plan for the Downtown Planning Area.

Center & Corridor Core: This designation allows commercial, office, and residential uses in designated Centers and Corridors. The type, intensity, and scale of uses allowed shall be consistent with the designated type of Center or Corridor. This Comprehensive Plan designation will be implemented with the Land Use Code for Centers and Corridors.

Center & Corridor Transition: These areas are intended to provide a transition of mixed uses (office, small retail, and multi-family residential) between the Center & Corridor Core designations and existing residential areas. Office and retail uses are required to have residential uses on the same site. This Comprehensive Plan designation will be implemented with the Land Use Code for Centers and Corridors, Center and Corridor Type 4.

Heavy Industrial: This designation is intended to accommodate heavier industrial uses at locations where there is no interaction with residential uses.

Light Industrial: This designation is intended for those lighter industrial uses, which produce little noise, odor, or smoke. River-oriented residential use is permitted in the light industrial designation.

General Commercial: The General Commercial designation includes a wide range of commercial uses. Everything from freestanding business sites or grouped businesses (shopping centers) to heavy commercial uses allowing outdoor sales and warehousing are allowed in this designation. Higher density residential use is also allowed. Commercial designated land is usually located at the intersection of or in strips along principal arterial streets. In locations where this designation is near residential areas, zoning categories should be implemented that limit the range of uses that may have detrimental impacts on the residential area. Existing commercial strips are contained at their current boundaries with no further expansion allowed.

Neighborhood Retail: The Neighborhood Retail designation recognizes the existence of small neighborhood-serving businesses in locations that are not larger than two acres and that lie outside designated centers and corridors. These locations are usually found along arterial streets, typically at the intersection of two arterials. In neighborhoods that are not served by a center or corridor, existing neighborhood businesses provide nearby residents access to goods and services.

To encourage the creation of mixed-use environments that attract growth in centers, no new neighborhood retail locations should be designated outside of a center. Further, business expansion at existing locations should be contained within the boundaries occupied by the existing designation. Business infill within these boundaries is also allowed.

Businesses that are neighborhood-serving and pedestrian-oriented are encouraged in neighborhood retail locations. Buildings should be oriented to the street and provide convenient and easily identifiable side-walk entries to encourage pedestrian access. Parking lots should not dominate the frontage and should be located behind or on the side of buildings. Drive-through facilities, including gas stations and similar auto-oriented uses tend to provide services to people who live outside the surrounding neighborhood and should be allowed only along principal arterials. Residential uses should be permitted in these areas. Residences may be in the form of single-family homes on individual lots, upper-floor apartments above business establishments, or other higher density residential uses.

Neighborhood Mini-Center: This designation allows the same uses as Neighborhood Retail. Higher density residential use is encouraged in these areas.

The Neighborhood Mini-Center designation recognizes the existence of small neighborhood-serving businesses in locations that are two to five acres in size that lie

outside centers and corridors designated on the land use plan map. Similar to neighborhood retail, the neighborhood mini-center designation consists of small, freestanding businesses usually sited at the intersection of or along arterial streets. Another characteristic of this designation is the greatly restricted potential for redevelopment of the surrounding area to support a full neighborhood center. Consequently, the mini-center designation limits mixed-use development to the boundaries of the existing mini-center designation.

Mini-center locations are encouraged to become small, mixed-use centers with residential use as a major component. Residential use adds market demand for neighborhood business and enables enhanced transit service to these locations. Shared-use parking arrangements are encouraged to increase the development intensity of the site for both residential and commercial uses.

This designation allows the same uses as the neighborhood retail designation. No new drive-through facilities, including gas stations and similar auto-oriented uses, should be allowed except along principal arterial streets. Buildings should be oriented to the street to encourage walking by providing easy pedestrian connections. Parking lots should not dominate the frontage and should be located behind or on the side of buildings.

Office: The Office designation is usually freestanding small office sites and larger sites with two or more buildings located along arterial streets or intersections or as a buffer adjacent to residential areas. Higher intensity office areas should be located around downtown Spokane.

Institutional: The Institutional designation includes uses such as middle and high schools, colleges, universities, and large governmental facilities. The institution designation on the Land Use Plan map is
a general boundary. It is intended to show where institutional uses are located without defining specific boundaries of institutional development.

Residential 15+: This designation allows higher density residential use at a density of 15 or more units per acre or more.

Residential 15-30: This designation allows higher density residential use at a density of 15 to 30 units per acre.

Residential 10-20: This designation allows single-family residences or two-family residences on individual lots or attached (zero-lot line) single-family residences. The allowed density is a minimum of 10 and a maximum of 20 units per acre. Allowed structure types are single-family residences or two-family residences on individual lots or attached (zero-lot line) single-family residences. Other residential structure types may be permitted through approval of a Planned Unit Development or other process identified in the development regulations.

Residential 4-10: This designation allows single-family residences, and attached (zero-lot line) single-family residences. The allowed density is a minimum of four units and a maximum of ten units per acre. Allowed structure types are single-family residences, attached (zero-lot line) single-family residences, or two-family residences in appropriate areas. Other residential structure types may be permitted through approval of a Planned Unit Development or other process identified in the development regulations.

Agriculture: The agricultural designation is applied to agricultural lands of local importance in the Urban Growth Area. Uses planned for agricultural areas include: farming, green house farming, single-family residence, and minor structures used for sales of agricultural products produced on the premises. Caretakers' quarters associated with the agricultural activity may be permitted as an accessory use when a single-family residence is located on the parcel.

Conservation Open Space: The Conservation Open Space land use category includes areas that are publicly owned, not developed, and designated to remain in a natural state. The purpose of this category is to protect areas with high scenic value, environmentally sensitive conditions, historic or cultural values, priority animal habitat, and/or passive recreational features. It is expected that improvements would be limited to those supporting preservation or some passive recreation activities, like soft trails and wildlife viewpoints.

Potential Open Space: The Potential Open Space land use category identifies areas that are not currently publicly owned, not developed, and designated to remain in a natural state. The purpose and types of improvements in this category are the same as the Conservation Open Space category.

Open Space: This designation includes major publicly or privately owned open space areas, such as golf courses, major parks and open space areas, and cemeteries. These areas usually have facilities for active and passive recreation and include paved and unpaved roads, parking lots, hard surface trails, and buildings and facilities that support activities occurring in the open space area.

Mining: Mining areas are primarily devoted to sand, gravel, rock, or clay production. Related products such as concrete, asphalt and brick are also produced.

The following table, LU 2, "Description of Land Use Designations," provides the names of the land use map designations, a description of the typical land uses found in each designation, and some of the applicable development standards. The table is followed by the Land Use Plan map which shows the location of the various land use designations that are described in the following table:

TABLE LU 2 – DESCRIPTION OF LAND USE DESIGNATIONS			
Land Use Designations	**Typical Land Use**	**Density (Units per Acre)**	
		Minimum	**Maximum**
Heavy Industrial	Heavier Industrial uses. No residential uses	-	-
Light Industrial	Light industrial uses, limited commercial and residential uses.	-	-
General Commercial	Commercial and residential uses, warehouses.	-	-
Regional Center (Downtown)	Variety of goods, services, cultural, governmental, hospitality, and residential uses. Downtown plan provides detail of planning for this area.	-	-
Neighborhood Retail	Neighborhood-Serving Business and residential use. Maximum containment area of two acres.	-	30
Neighborhood Mini-Center	Same uses as Neighborhood Retail.	-	30
Office	Offices and residential use.	-	-
Institutional	Includes uses such as middle and high schools, colleges, universities, and large governmental facilities.	Same standards as designation in which institution is located or as allowed by discretionary permit approval.	
Residential 15+	Higher density residences.	15	-
Residential 15-30	Higher density residences.	15	30
Residential 10-20	Attached or detached single-family and two-family residences.	10	20
Residential 4-10	Attached or detached single-family residences.	4	10
Agriculture	Agricultural lands of local importance.	-	-
Conservation Open Space	Areas that are publicly owned, not developed and designated to remain in a natural state.	-	-
Potential Open Space	Areas that are not currently publicly owned, not developed and expected to remain in a natural state.	-	-
Open Space	Major publicly or privately owned open space areas such as golf courses, major parks and open space areas, and cemeteries.	-	-
Neighborhood Center	Neighborhood-oriented commercial uses, offices, mixed-type housing, parks, civic uses in a master-planned, mixed-use setting.	15	32 in the core, 22 at the perimeter

TABLE LU 2 – DESCRIPTION OF LAND USE DESIGNATIONS			
Land Use Designations	**Typical Land Use**	**Density (Units per Acre)**	
		Minimum	**Maximum**
District Center	Community-oriented commercial uses, offices, mixed-type housing, parks, civic uses in a master-planned, mixed-use setting.	15	44 in the core, 22 at the perimeter
Corridor	Community-oriented commercial uses, mixed-type housing in a master-planned, mixed-use setting.	15	44 in the core, 22 at the perimeter
Employment Center	Major employment uses, community-oriented commercial uses, mixed-type housing in a master-planned, mixed-use setting.	15	44 in the core, 22 at the perimeter
Center & Corridor Core	Commercial, office and residential uses consistent with type of designated Center and Corridor.	-	-
Center & Corridor Transition	Office, small retail, and multi-family residential uses. Office and retail uses are required to have residential uses on the same site.	-	-

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June 8, 2015

Plan Commission Packet

Shaping Spokane

2017 Update to the
Comprehensive Plan

Part VI

Focus Group Members

COMPREHENSIVE PLAN REVIEW AND UPDATE
LAND USE POLICY FOCUS GROUP PARTICIPANTS

	Name	Affiliation
1	Candace Mumm	City Council Liaison
2	Mike Ekins	Plan Commission Liaison
3	Brandon Rapez-Betty	Downtown Spokane Partnership
4	Brittany Hadley	Spokane Regional Health District
5	Heleen Dewey	Spokane Regional Health District
6	Jay Cousins	Emerson-Garfield Neighborhood
7	Joel Soden	Spokane Transit Authority
8	Karl Otterstrom	Spokane Transit Authority
9	Kelly Cruz	Community Assembly Land Use Committee
10	Kitty Klitzke	Futurewise
11	Michael Cathcart	Spokane Home Builders Association
12	Paul Kropp	Neighborhood Alliance
13	Jo Anne Wright	City of Spokane

Note: This list was created using sign-in sheets from the various focus group meetings. If someone attended but did not sign the sheet they may not be shown here. Any omission from this list is accidental.

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