

*CITY OF SPOKANE
LEVELS OF SERVICE STANDARDS/
CONCURRENCY MANAGEMENT SYSTEM
Preliminary Program*

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TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
Key Issues Addressed by Proposed LOS/CMS Program	1
Regional Guidelines for LOS/CMS Program	2
Report Organization.....	6
METHODOLOGY AND APPLICATION FOR PLANNING LOS CONCEPT	7
Approach Methodology	7
Application to the Comprehensive Plan Land Use Alternatives	19
LEVEL OF SERVICE/CONCURRENCY MANagementsystem Concept	
PROGRAM FOR DEVELOPMENT REVIEW	35

FIGURES

1. SRTC Regional Congestion Management System Corridors	4
2. Proposed LOS/CMS Roadways.....	10
3. Arterial Segments for LOS Standards	12
4. Aggregate Arterial Segments.....	13
5. Initial Route Segments Adjusted for Transit Service	16
6. Example Application of Planning LOS/CMS Program	18
7. 2020 LOS Standards-Current Patterns Alternative.....	22
8. 2020 LOS Standards- Focused Growth: Centers and Corridors Alternative	23
9. 2020 LOS Standards- Focused Growth: Central City Alternative	24
10. 2020 LOS Deficiencies-Current Patterns on No Action Transportation System	26
11. 2020 LOS Deficiencies-Current Patterns	29
12. 2020 LOS Deficiencies-Focused Growth: Centers and Corridors.....	30
13. 2020 LOS Deficiencies Focused Growth: Central City.....	32
14. Flow Chart for LOS/CMS Application for Development Review	36

TABLES

1. Spokane Metropolitan Area Congestion Management System Corridors	3
2. Arterial Levels of Service	14
3. Concept for Setting LOS Standard on Designated Arterial Segments	14
4. Metropolitan Area Transportation Plan.....	20
5. 2020 PM Peak Hour LOS Deficiencies Summary	27
6. Order of Magnitude Improvement Costs ¹	33

CITY OF SPOKANE LOS STANDARDS/CONCURRENCY MANAGEMENT SYSTEM—PRELIMINARY PROGRAM: EXECUTIVE SUMMARY

As part of its comprehensive planning efforts, the City of Spokane is in the process of defining a transportation Level of Service Standard/Concurrency Management System (LOS/CMS) to help it manage growth and to assure adequate transportation facilities are in place concurrent with new development. The Comprehensive Plan process is currently evaluating three land use alternatives. The preliminary LOS/CMS program is being used in the evaluation of alternatives. When adopted as part of the Comprehensive Plan, the LOS/CMS program will be used by the City to implement its planning objectives and direct transportation funding to support desired growth patterns.

Key Issues Addressed by Proposed LOS/CMS Program

The City of Spokane has two levels of needs for LOS standards and CMS. At one level, the City wants the LOS standard and CMS to serve as a tool to assist in its long-range planning efforts. On a second level the City needs to establish a LOS standard and implement a CMS for evaluating the adequacy of the transportation system to support actual development proposals. There are many decisions to be made in developing a LOS/CMS that is technically sound and supports the growth objectives of the City. Key items are discussed below.

A two-tier LOS/CMS program is proposed. To meet broad planning and capital facilities programming needs, the first tier is a Planning LOS/CMS program based on travel times along principal arterials and key minor and collector routes. The second tier will be used for reviewing individual development projects. The LOS/CMS program for individual development projects still needs to be defined in terms of when and how it will be applied. The City needs to define if it will be applied to building permits, subdivisions, rezones or other development applications.

The proposed LOS/CMS program establishes different standards for different areas of the City. To be effective in helping manage and direct growth, the level of service standard must reflect the land use strategy. Where growth is encouraged, lower levels of service would be allowed.

The LOS standard allows more congestion when significant levels of alternative travel modes, such as transit are available. To help promote transit supportive land uses, the proposed Planning LOS/CMS program allows more congestion in corridors that are served by significant levels of transit service.

The LOS/CMS program should support regional air quality standards. Although not specific to the LOS/CMS program, meeting air quality standards is a short and long-term planning/implementation issue for the region.

Implementation of LOS/CMS Program will require sufficient resources. Since major planning decisions, transportation funding allocation, and approval/denial of

development projects will be influenced by the LOS/CMS program, adequate funding and resources must be provided for to implement the system.

Regional Guidelines for LOS/CMS Program

The SRTC (and its member agencies) have defined travel time as the method that the adequacy of regional facilities will be measured. The SRTC conducts regional concurrency tests annually during the month of August. The annual update takes into consideration the most recent land use data based on building permits, plat applications and employment information. It also incorporates any changes to the transportation system and proposed changes to local agency transportation plans.

In addition to the requirements for regional facilities, the SRTC Guidelines set out the responsibilities for local jurisdictions within the region. The SRTC guidelines do not require a specific process or methodology for setting the LOS standard for local jurisdictions. The guidelines do, however, indicate that local standards should be regionally consistent.

Methodology and Application for Planning Level of Service Concept

The Planning Level of Service/Congestion Management System (LOS/CMS) is intended to provide City staff, elected officials, and the public with a tool to assist in developing and evaluating land use and transportation plans. It also would be used as part of the priority programming process for development of the City's Six-Year Transportation Improvement Program (TIP). Its preliminary application to the three land use alternatives will be considered in selecting a preferred land use plan. The preliminary program will need to be refined prior to formal adoption and implementation.

Goals and objectives for the Planning LOS/CMS include the following:

- The broad planning LOS standard should be used to assess the overall adequacy of the transportation system to serve the needs of and support the land use plan.
- The LOS standard should be reasonably consistent with and compatible with the adopted standards for the Spokane region.
- The LOS/CMS program should assist in identifying and programming capital transportation facility improvements and services to provide an adequate transportation system that supports the land use plan.
- The system should be simple to understand and implement.
- The program should use available tools for implementation.

Overview of Preliminary Planning LOS/CMS Program

The following provides an overview of the interface with the regional planning model identification of the facilities to be tested, how the LOS standard would be set, and an approach for implementing the program.

Regional Model Interface. The regional Metropolitan Transportation Plan (MTP) financially constrained network was selected as the basis for developing the City of Spokane's LOS/CMS program. The MTP's financially constrained network includes all projects that have some existing funding commitments to be completed within 6 to 10 years. It also includes other long-range projects that will likely be completed within 20 years. This is the most realistic scenario based on current funding for the region's transportation system.

Identifying Corridors. Criteria were considered in defining which facilities would be included in the LOS/CMS program. These criteria included functional class, travel patterns, limited access facilities, jurisdiction, and the SRTC model structure. For consistency, the same arterials were used for all three land use alternatives. They were defined using the following criteria: *Functional Classification, Location, Central Business District, State Facilities.*

Defining LOS/CMS Routes. Prior to identifying specific LOS standards the arterial routes were defined as *route segments* and *aggregate arterial segments*. This process allows the LOS/CMS evaluation to consider the effects of growth within a specific area, as well as the impacts on longer trips.

Setting the LOS Standard. The LOS/CMS standard is set in two parts. The first part establishes a base LOS standard that reflects the overall LOS/CMS concept for a particular land use plan. Where growth is encouraged under a land use plan, longer travel times (slower speeds) are allowed. Higher travel speeds would be required to be maintained for longer trips that connect to an area where growth is less desirable based on the land use plan. The base LOS standard for each route segment is then adjusted based on availability significant levels of transit service or non-motorized travel. Under the preliminary LOS/CMS program approach the base LOS standard would be adjusted to reflect the availability of significant, efficient, transit service.

Implementation Approach. The LOS/CMS program concept has been developed based on the 2020 SRTC regional travel demand model. Prior to actual implementation the model tool needs to be refined to reflect actual travel times. A program for when the planning level test would be conducted also needs to be formalized.

Application to the Comprehensive Plan Land Use Alternatives

The proposed LOS/CMS program was applied to each of the three Comprehensive Plan land use alternatives:

- *Current Patterns* - reflects a condition where the City would apply the same growth practices that have occurred over the past 40 years or so.
- *Focused Growth: Centers and Corridors* - concentrates growth in mixed-use district centers, neighborhood centers, employment centers and along transportation corridors.
- *Focused Growth: Central City* - focuses growth in downtown Spokane and areas adjacent to downtown.

Each land use alternative was modeled by SRTC assuming the MTP's 2020 "financially constrained" transportation system improvements are constructed. In addition to evaluating the three land use alternatives on the "financially retrained" network, SRTC modeled the 2020 *Current Patterns* alternative on the existing or "No Action" network. This network includes no significant capacity improvements. It was evaluated since it provides a baseline condition for comparing alternatives.

LOS Standards. Assigning of the preliminary LOS standards for the three alternatives took into account the overall objectives of each of the land use plans. The base LOS standard for the *Current Patterns* was established as LOS D for all route segments. This reflects current policies, which do not attempt to direct growth to any specific areas. It also allows for moderate congestion levels anywhere in the City. Where efficient transit service is available LOS E would be allowed.

The LOS standard for the *Focused Growth: Centers and Corridors* alternatives varies from LOS C to LOS F. LOS C would be assigned to the outermost route segments where no mixed-use centers or corridors are identified in the proposed land use plan. LOS D was assigned to the route segments that serve travel between the identified centers and corridors. A base LOS D also was assigned to some major east-west routes providing access to the City of Spokane. LOS E was assigned to the route segments serving the centers and corridors, including the central business district. Applying the one-grade lower LOS standard for transit corridors results in some of the route segments serving designated growth areas being allowed to operate at LOS F.

The base LOS standard for the *Focused Growth: Central City* alternative was set as a series of rings. LOS E is allowed in the ring immediately adjacent to the downtown core. This supports the plan concept for higher densities adjacent to the downtown area. LOS D was established for the route segments from Francis on the north to 29th on the south. Growth in these areas would be able to access the downtown area in a reasonable amount of travel time. Route segments in the outer part of the City and most of the Urban Growth Area (UGA) would have LOS C assigned.

2020 LOS Deficiencies. Application of the LOS/CMS program to the alternatives resulted in some route segments being deficient compared to the preliminary standards. Just because a route segment is deficient does not necessarily mean the entire roadway needs to be improved. Forecast PM peak hour travel speeds may be only slightly below the standard. Therefore, spot intersection improvements or widening a part of a corridor may be sufficient to bring the route segment into compliance with the LOS standard.

As summarized in [Table E-1](#), a total of 22 of the 58 route segments would not meet the LOS standard for the *Current Patterns on No Action* scenario. This represents 44.4 miles of arterial routes that would be below the preliminary LOS standard. The adjustment to the LOS standard for transit does not change the number of deficient route segments. Without additional capacity, as defined in the financially constrained network, significant congestion will result. The congestion will be most pronounced on north-south routes.

Table E-1. 2020 PM Peak Hour LOS Deficiencies Summary

Route Segments	Alternative							
	<i>Current Patterns on No Action Network</i>		<i>Current Patterns on Financially Constrained Network</i>		<i>Focused Growth: Centers and Corridors on Financially Constrained Network</i>		<i>Focused Growth: Central City on Financially Constrained Network</i>	
	W/O Transit Adjustment	With Transit Adjustment	W/O Transit Adjustment	With Transit Adjustment	W/O Transit Adjustment	With Transit Adjustment	W/O Transit Adjustment	With Transit Adjustment
Number of Deficient Route Segments								
North-South ^{1,3}	17 ¹	17 ¹	10 ³	10 ³	9 ³	8 ³	9 ³	8 ³
East-West ²	5	5	5	2	5	2	5	3
Total Number^{4,5}	22	22	15	12	14	10	14	11
Deficient Route Segments (Miles)								
North-South	29.4	29.4	13.7	13.7	12.3	10.4	13.2	11.3
East-West	15.0	15.0	19.8	3.5	19.8	3.5	20.4	5.3
Total Miles^{4,5}	44.4⁴	44.4⁴	33.6⁵	17.3⁵	32.2⁵	13.9⁵	33.6⁵	16.6⁵
Aggregate Segments Number of Deficient ⁶	3	3	1	1	1	1	1	1
^{1.} Total number of North-South route segments for no action network is 38 covering 79.3 miles of roadway. ^{2.} Total number of East-West route segments is 20 covering 68.9 miles of roadway for all alternatives. ^{3.} Total number of North-South route segments for financially constrained network is 39 covering 80.1 miles of roadway. ^{4.} Total number of route segments for no action network is 58 covering 148.2 miles of roadway. ^{5.} Total number of route segments for financially constrained network is 59 covering 149.0 miles of roadway. ^{6.} Total number of Aggregate Segments is 6; mileage is included in route segment summary.								

Addition of improvements identified in the SRTC's MTP financially constrained network significantly reduces the number and extent of the deficient route segments under the *Current Patterns* alternative. A total of 17.3 miles of route segments would be deficient under this alternative, with the transit adjustment. This is a significant improvement over the *Current Patterns* on the No Action Network, which had 44.4 miles of deficient route segments.

The *Focused Growth: Centers and Corridors* alternative on the MTP financially constrained system results in a total of 10 route segments falling below the preliminary standard. This assumes the adjustment for transit. These cover 13.9 miles of arterials. With the transit adjustment to the LOS standard, one-half of the north-south corridors between I-90 and Buckeye/North Foothills/Euclid would be below the standard.

After adjustment for transit, the *Focused Growth: Central City* alternative has two additional route segments that are identified as deficient compared to the *Focused Growth: Centers and Corridors* alternative. These are Lincoln between Buckeye and Francis and 57th between Hatch Road and the Palouse Highway. However, under this alternative, Monroe between Buckeye and the Spokane River would meet the preliminary LOS standard set for this

alternative. With the adjustment for transit, this alternative results in 11 route segments being below the preliminary LOS standard. These segments cover 16.6 miles of arterials.

Costs for Bringing Alternatives into Compliance. There are several possible approaches for bringing the alternatives into compliance.

- Revising the LOS standards is one potential approach; however, this method needs to be discussed in the public forum as part of selecting a preferred land use plan and concurrency standard.
- Defining intersection and roadway improvements that would add capacity to the deficient corridor. The added capacity provided by the *Financially Constrained* network was shown to greatly reduce the number of deficiencies for the *Current Patterns* alternative. The full route segment may not need to be fully improved to meet the standard.
- Adding capacity to a parallel route to direct forecast traffic away from the deficient route segment.

Table E-2 summarizes the planning level costs of the potential improvements to bring the three alternatives into compliance. The *Current Patterns* on the No Action network was not evaluated, since the regional MTP is based on the Financially Constrained network were assumed for all three action alternatives. The two *Focused Growth* alternatives gave approximately \$2 - \$3 million costs than the *Current Patterns* alternative.

Costs of improving WSDOT facilities for the MTP within the City are not included; however they would be the same for all alternatives.

Table E-2. Order of Magnitude Improvement Costs¹

	<i>Current Patterns</i>		Focused Growth: Centers and Corridors		Focused Growth: Central City	
	Number	Costs \$1000's	Number	Costs \$1000's	Number	Costs \$1000's
MTP Financially Constrained Network Improvements ²	4	\$49,200	4	\$49,200	4	\$49,200
Major Intersection Improvements	9	\$2,250	18	\$4,500	18	\$4,500
Roadway Widening	6.2 Miles	\$9,300	3.1 Miles	\$4,650	2.9 Miles	\$4,350
Total		\$60,750		\$58,350		\$58,050

^{1.} All alternatives reflect SRTC MTP financially constrained network

^{2.} Cost estimate includes \$38 million for Post Street Bridge replacement which has been deleted by the City from MTP Financially Constrained Network.

Future Refinements. The proposed Planning LOS/CMS program will require refinements prior to implementation for the City's ongoing use. Prior to refining the process, the City must make a determination that the approach and overall concept are consistent with its overall vision. The process is generally consistent with the regional SRTC LOS/CMS program; however, the City's program would apply to a greater number of facilities.

The Planning LOS/CMS program is only conceptual at this time. It's application to the land use alternatives evaluation is based solely on 2020 PM peak hour model data provided by SRTC. Prior to implementation, the City in conjunction with SRTC should obtain actual travel time data for the corridors and update the regional model calibration.

Level of Service/Concurrency Management/System Program- System Concept for Development Review

This component of the City's LOS/CMS program would be applied to meet the GMA and SRTC requirements that minimum LOS thresholds be maintained with each development. If minimum thresholds cannot be assured within six years, then the development should not be approved at that time.

Key goals and objectives for the development review level of service standard include:

- Ensure that development can be supported by an adequate transportation system.
- The development review program should support the land use and transportation elements of City's Comprehensive Plan.
- Meet City's responsibility for SEPA review related to levels of service.
- Apply development review standards consistently.
- Provide input to City's transportation facilities planning and programming processes.
- The development review LOS standard process should be relatively easy to apply and understand.

Overview of Conceptual Strategy for Development Review

Figure E-1 provides a schematic flow chart of the conceptual process development review LOS review process. The conceptual LOS/CMS strategy for development review consists of two parts:

- Evaluate consistency with City Comprehensive Plan and Planning LOS/CMS standards. This step would tie the development review evaluation to the Planning.
- Evaluate intersection LOS/CMS in local vicinity of project. This includes identifying facilities to be evaluated, setting the standard, and defining improvement strategies for mitigation.

Application of Development Review Program to Land Use Alternatives

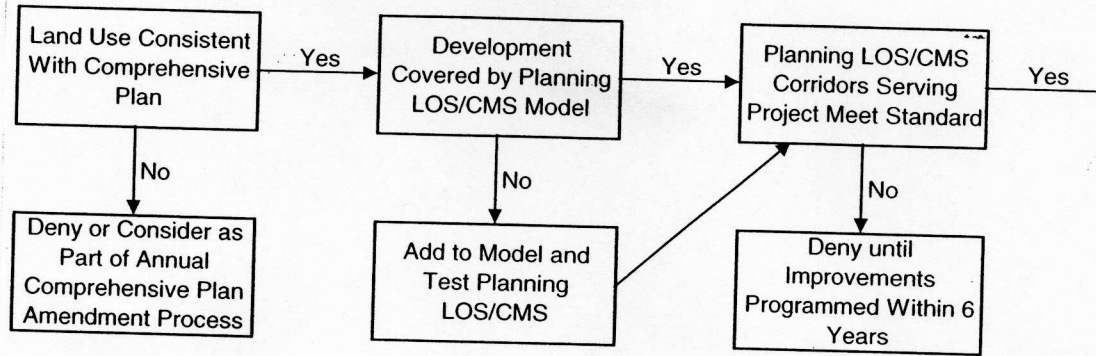
The primary issue in applying the project level LOS standard to the three growth scenarios is the setting of acceptable standards. As with the corridor travel times, lower LOS standards (LOS D, E or F) could be applied within the designated growth areas for the *Focused Growth: City Center and Centers and Corridors* alternatives. A higher standard (e.g. LOS C)

could be applied to areas where growth would not be desired under that plan alternative. Under the *Current Patterns* alternative, differential standards would not likely be applied.

Prior to being a valid tool for evaluating development projects versus a LOS/CMS standard several items must be addressed. First, detailed administrative procedures must be prepared. Second, the travel model process must be developed to evaluate a six-year horizon, instead of 2020 forecasts. The administrative procedures and travel model process are some of the key issues that need to be developed and/or refined prior to implementing the development review LOS/CMS process.

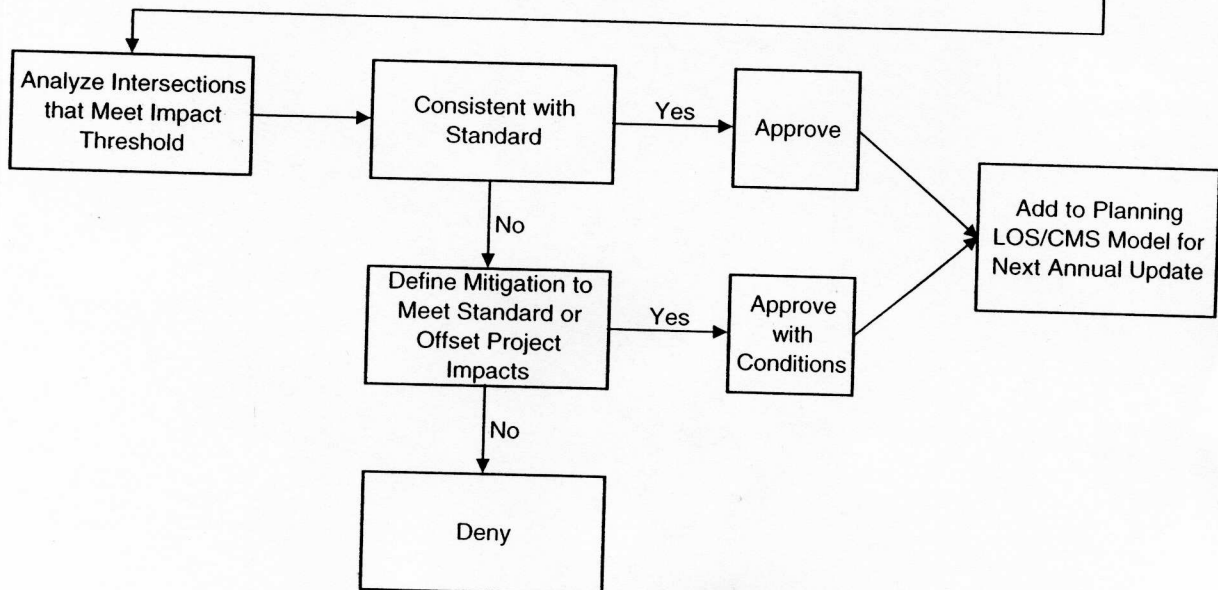
Part I.

Check Consistency with Comprehensive Plan and Planning LOS/CMS Standard



Part II.

Local Area LOS/CMS Evaluation



INTRODUCTION

Spokane County and all of its cities are subject to the requirements of the State's Growth Management Act (GMA). This includes a requirement that agencies, such as the City of Spokane, prohibit development if the development causes a transportation facility to fall below the adopted level of service standard unless improvements or strategies are to be made within six years to accommodate the impacts of the development. Therefore, the decision on a level of service standard (LOS) and Concurrent Management System (CMS) is an important element of the City approving or denying individual development projects.

As part of its comprehensive planning efforts, the City of Spokane is in the process of defining a transportation level of service standard/Concurrency Management System (LOS/CMS) to help it manage growth and to assure adequate transportation facilities are in place concurrent with new development. The Comprehensive Plan process is currently evaluating three land use alternatives. The preliminary LOS/CMS program is being used to help evaluate the three alternatives. When adopted as part of the Comprehensive Plan, the LOS/CMS program will be used by the City to implement its planning objectives and direct transportation funding to support desired growth patterns.

The following highlights some of the most important issues that are addressed in developing a LOS/CMS program for the City of Spokane. Final direction will need to be provided on these items through the review and adoption of the Comprehensive Plan. An overview of the regional planning context is then provided. This includes a summary of the regional LOS/CMS program and the requirements and objectives for the City's program. The organization of the rest of the report is then presented.

Key Issues Addressed by Proposed LOS/CMS Program

There are many decisions to be made in developing a LOS/CMS that is technically sound and supports the growth objectives of the City. Several of the decisions are significant in terms of overall policy direction. These are briefly summarized below. The City will need to affirm these concepts as part of its Comprehensive Plan adoption process.

A two-tier LOS/CMS program is proposed. To meet broad planning and capital facilities programming needs, the City has developed a Planning LOS/CMS program based on travel times along principal arterials and key minor and collector routes. It will be used to assess the overall adequacy of the transportation system to serve the needs of and support the land use plan. A second-tier of LOS/CMS evaluation would be applied to individual development projects. The second tier evaluation requires compatibility and consistency with the Planning LOS/CMS standard and also requires evaluation of intersection operations in the vicinity of each new development project.

Application of the project level LOS/CMS program to specific development permits is still in development. The LOS/CMS program for individual development projects still needs to be defined in terms of when and how it will be applied. The City needs to define if it will be applied to building permits, subdivisions, rezones or other development applications. Exemptions for affordable housing, schools, public facilities, or other land uses also need to be established by ordinance, after adoption of the Comprehensive Plan.

The proposed LOS/CMS program establishes different standards for different areas of the City. To be effective in helping manage and direct growth, the level of service standard must reflect the land use strategy. Where growth is encouraged, lower levels of service would be allowed. The City took this approach to help it manage and direct growth to meet its overall vision. This approach also will allow the City to focus its transportation funding to areas that best support the growth strategy. Setting a uniform LOS throughout the City was found to support significant growth within the outer parts of the City, which would be more difficult and costly to serve with transportation facilities and services.

The LOS standard allows more congestion when significant levels of alternative travel modes, such as transit are available. The proposed Planning LOS/CMS program allows more congestion in corridors that are served by significant levels of transit service. This promotes development of transit supportive land uses and reduces the need for costly widening of arterials to support single-occupant vehicles (SOV).

LOS/CMS program should support regional air quality standards. Although not specific to the LOS/CMS program, meeting air quality standards is a short and long-term planning/implementation issue for the region. Adoption and implementation of an LOS/CMS program also should support the region's efforts to meet national air quality standards and support implementation of the region's State Implementation Plan (SIP).

Implementation of LOS/CMS Program will require sufficient resources. Since major planning decisions, transportation funding allocation, and approval/denial of development projects will be influenced by the LOS/CMS program, adequate funding and resources must be provided to implement the system. The preliminary LOS/CMS program is based only on the SRTC long-range travel demand model forecasts. Prior to being used for detailed planning or project reviews, the model data must be confirmed with actual travel time data. Options include working with SRTC or implementing the system in-house.

Regional Guidelines for LOS/CMS Program

In developing its transportation LOS standard, the City needs to take into account the regional context for service standards, as adopted by the Spokane Regional Transportation Council (SRTC). The SRTC has prepared guidelines to assist local agencies in developing LOS standards (Draft 2-18-99). The following summarizes SRTC's responsibilities and the regional directives related to local level of service standards and Concurrency Management Systems.

SRTC Regional Responsibilities

The SRTC has responsibilities for implementing and managing the LOS/CMS program for the Spokane region. This includes assessing the impacts of local Comprehensive Plans on the performance of regional transportation facilities. To that end, SRTC (and its member agencies) have defined travel time as the method that the adequacy of regional facilities will be measured. The SRTC conducts regional concurrency tests annually during the month of August. The review is conducted based on estimated PM peak hour travel times estimated by the regional travel demand model. The model travel times are validated using actual travel

time data from an Automated Vehicle Identification (AVI) program. The travel time studies and data include the time it takes a vehicle to travel along a road segment and the delays at intersections.

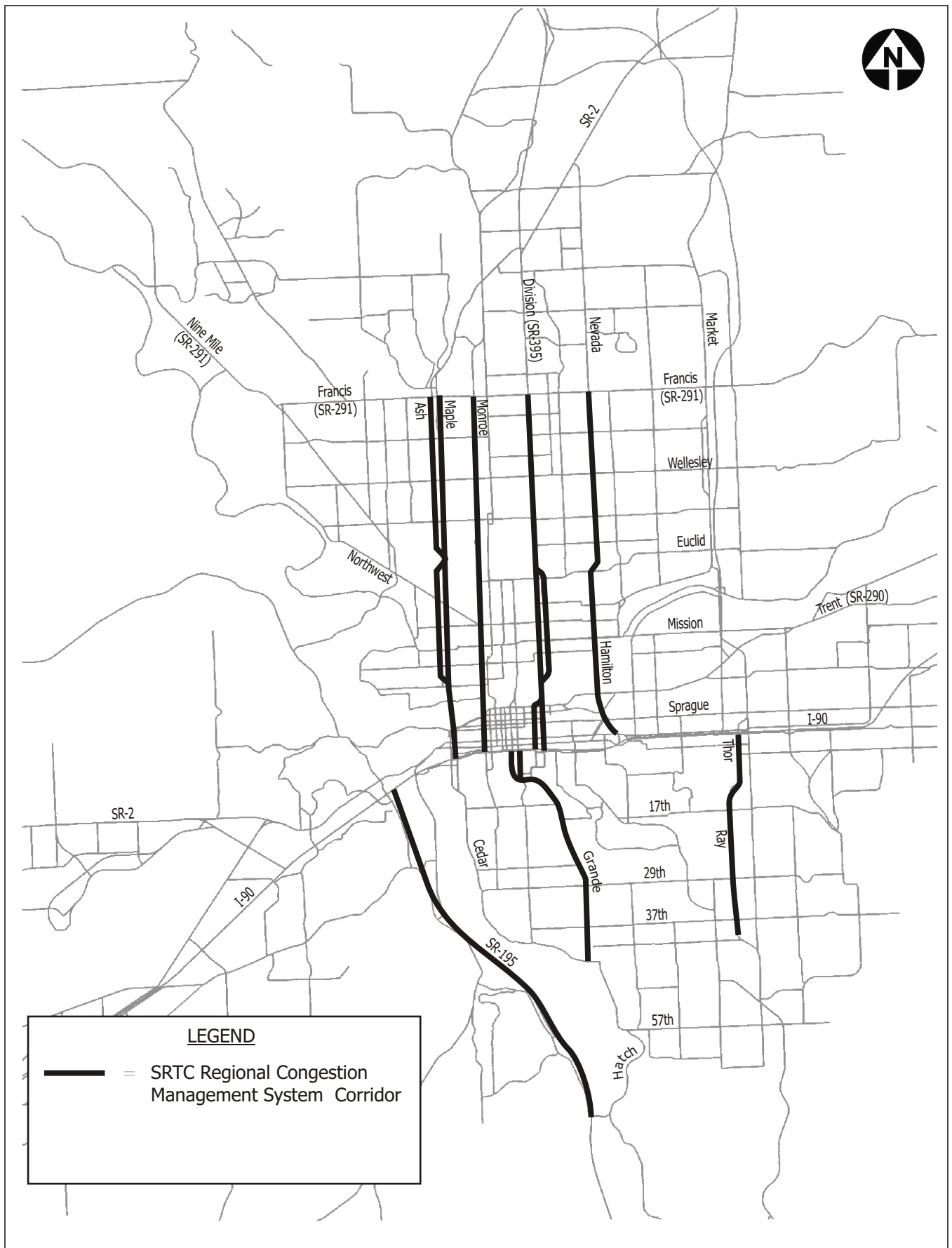
SRTC's annual update takes into consideration the most recent land use data based on building permits, plat applications and employment information. It also incorporates any changes to the transportation system and proposed changes to local agency transportation plans.

At this time, the SRTC has defined the corridors and the methods for evaluating the travel times in each corridor. They have not, however, adopted a specific standard for any of the corridors. The corridors defined in of the Spokane Metropolitan Area Metropolitan Transportation Plan, (Table 5.5, SRTC, November 1999) are shown on Table 1 and [Figure 1](#).

Table 1. Spokane Metropolitan Area Congestion Management System Corridors

CMS Corridor Primarily Within City of Spokane	CMS Corridor Primarily Outside of City of Spokane
SR 195 I-90 to Hatch Road	Interstate 90 Sullivan to Havana
Maple/Ash Corridor Francis to Maple Bridge Maple Bridge to I-90	Argonne/Dishman-Mica Road Sprague Avenue to I-90 I-90 to Upriver Drive
Monroe Street I-90 to Francis	Sprague Avenue Sullivan to Argonne
Hamilton/Nevada I-90 to Francis	University Road Sprague to 32 nd Avenue
Division Street I-90 to North River Drive North River Drive to Francis	Pines Road Sprague Avenue to I-90 I-90 to SR 290
Grand Blvd. I-90 to High Drive	Sullivan Road Sprague Avenue to I-90 I-90 to SR 290
Thor/Ray I-90 to 37 th Avenue	Upriver Drive Frederick to Sullivan
<i>Metropolitan Transportation Plan, Table 5.5, SRTC, November 1999.</i>	

Approximately one-half of the regional CMS corridors are within the City of Spokane. All of the regional CMS corridors within the City are north-south arterials connecting to I-90. These designations reflect the major existing travel patterns within the City which are focused on the City's Central Business District



Local Jurisdiction Responsibilities

In addition to the requirements for regional facilities, the SRTC Guidelines set out the responsibilities for local jurisdictions within the region. Local jurisdictions are generally responsible for the following:

- identifying which transportation facilities are subject to LOS standards and CMS (as a minimum the defined regional transportation facilities within a jurisdiction should be included)
- establishing LOS standards for local facilities
- defining what developments should be tested
- determining if potential traffic impacts of developments are acceptable based on the standards.

The SRTC guidelines do not require a specific process or methodology for setting the LOS standard for local jurisdictions. The guidelines do, however, indicate that local standards should be regionally consistent. As developed in this report, the City of Spokane proposes using travel time as part of its two-part LOS/CMS program. This provides consistency with the regional approach.

City of Spokane Objectives for LOS Standards and CMS for Planning and Development Review

The City of Spokane has two levels of needs for LOS standards and CMS. At one level, the City wants the LOS standard and CMS to serve as a tool to assist in its long-range planning efforts. The LOS standard and CMS would be one of the criteria used by the City in evaluating land use and transportation system plans. In this role, the LOS standard would provide the City a tool in identifying areas where the existing and planned transportation infrastructure and services would or would not support the land use plan. It also would help in prioritizing funding for transportation projects to support the City's land use plan.

As defined by GMA and the SRTC guidelines, the City also needs to establish a LOS standard and implement a CMS for evaluating the adequacy of the transportation system to support actual development proposals. This requires the City to deny development applications if the transportation system falls below the adopted standards, unless improvements or strategies would bring the facility into compliance within six years. The City would like to integrate and combine the GMA requirements with its SEPA responsibilities related to review of potential transportation impacts of proposed developments. An overview of this two-tiered LOS/CMS program is presented in this report. Once the overall concept of a two-tiered system is adopted, the City will need to expand and refine the development review component of the LOS/CMS program.

The City must be able to efficiently implement the system. Any system will require staff resources, equipment and funding. The two-tiered approach allows the City to conduct the broad based evaluation once per year which could provide input to any Comprehensive Plan changes and the Six-Year Transportation Improvement Program (TIP). The broad

planning evaluation also will provide the framework for review of development proposals. The implementation process will need to be coordinated with SRTC, since the program is based on the regional travel demand model. Integrating the SRTC's use of AVI data also would provide consistency with the regional program and the accuracy of the system.

Report Organization

The remainder of the report presents the development and application of a preliminary Level of Service/Concurrency Management System (LOS/CMS) for the City of Spokane. A two-tiered system is proposed. The first tier is a broad planning LOS/CMS evaluation covering key arterials. It is the primary focus of the report, since it is being used to evaluate the three land use alternatives in developing the Comprehensive Plan. The second tier is an evaluation of the potential traffic impacts of proposed developments to assure adequacy of facilities. A summary of the second-tier concept is presented in this report. If the City adopts the conceptual strategy for this two-tiered approach, then specific implementation parameters and processes will need to be further defined.

The next section describes the broad Planning LOS/CMS concept. It provides an overview of the goals for the program, a concept of how the standards might be set, and how the measurements would be conducted. It also describes the results of applying the concept to each of the three land use plans that the City is evaluating as part of its GMA planning process. This includes setting preliminary standards for each land use plan and identification of deficiencies. An estimated cost for bringing each alternative into compliance with the standards also is included. Future refinements for the system prior to its full implementation are also discussed.

The proposed concept for evaluating the adequacy of transportation facilities as part of the review of individual development projects is then presented. It includes a discussion on how the project level review could be related to the Planning LOS/CMS Program. It also presents a program and potential set of standards for implementing the strategy as part of the SEPA development review process. Mitigation strategies for a development to minimize or offset its impacts are also discussed. This level of detail was not applied to each of the land use plans and will have to be developed further as the City adopts its Comprehensive Plan.

METHODOLOGY AND APPLICATION FOR PLANNING LEVEL OF SERVICE CONCEPT

At this time the City is defining its overall growth strategy and is evaluating three land use plan alternatives. Several options for a LOS/CMS program were considered to help the City meet the requirements of GMA and to provide a usable tool to help assure the adequacy of its transportation system. At this time the City is proposing a two-tiered concept. The first tier is considered a broad planning level evaluation. It is based on PM peak hour travel times along key arterials, consistent with the regional SRTC approach. This section describes the overall concept and its application to the three land use plans. The results for each land use plan alternative will be considered in selecting a preferred land use plan and will also be used in refining the LOS/CMS program prior to adoption and implementation.

Approach Methodology

The following presents the approach to meet the City of Spokane's needs/desires for evaluating transportation levels of service at a broad planning level. It is intended to support and be consistent with the SRTC regional strategy. It would provide City staff, elected officials, and the public with a tool to assist in developing and evaluating land use and transportation plans. It also would be used as part of the priority programming process for development of the City's Six-Year Transportation Improvement Program (TIP).

Goals and Objectives

Goals and objectives for the Planning Level of Service/Concurrency Management System (LOS/CMS) include the following:

- The broad planning LOS standard should be used to assess the overall adequacy of the transportation system to serve the needs of and support the land use plan.
- The LOS standard should be reasonably consistent with and compatible with the adopted standards for the Spokane region.
- The LOS/CMS program should assist in identifying and programming capital transportation facility improvements and services to provide an adequate transportation system that supports the land use plan.
- The system should be simple to understand and implement.
- The program should use available tools for implementation.

Overview of Preliminary LOS/CMS Program

PM peak hour travel times in key corridors have been adopted as the regional LOS standard. SRTC is using estimates of travel times in regional corridors to evaluate the regional and local land use and transportation plans. The Planning LOS/CMS program for the City of Spokane is also based on PM peak hour travel times. This provides consistency with the regional approach. Use of travel times and the resulting speeds also should be relatively easy to understand by the public and elected officials. The PM peak hour travel times for the

model can be directly correlated to speeds and delays, consistent with LOS criteria in the *Highway Capacity Manual* (HCM). This provides a solid technical basis for the evaluation method and program concept.

The following provides an overview of the key components of the program concept, including:

- interface with the regional planning model identification of the facilities to be tested,
- identifying how the LOS standard would be set,
- implementing the program.

Regional Model Interface

The City decided to use the SRTC regional travel demand model in order to evaluate travel times and the levels of service in a systematic way. The regional model includes all arterials within the City and its Urban Growth Area (UGA). It also includes land uses from the City of Spokane and surrounding areas. Therefore, the regional model provides a comprehensive tool for evaluating the major transportation system facilities within the City.

In preparing the regional Metropolitan Transportation Plan (MTP), SRTC (working with its member jurisdictions) developed and modeled several transportation and land use scenarios. The MTP is based on a 2020 horizon year and is based on the City's existing Comprehensive Plan framework. In the City's Comprehensive Plan update process this land use plan is called the "*Current Patterns*" Alternative.

SRTC applied the land use plan and associated travel demands to three transportation system packages:

- **No Build** – assumes that the existing transportation system will remain essentially as it is, with only routine maintenance activities.
- **Financially Constrained** – This alternative assumes that projects with some existing funding commitments will be completed in the next 6 to 10 years. It also includes some projects that would likely be completed within the 20-year horizon.
- **Full Build** – This regional alternative is based on the region's 1998 MTP and assumes additional funding would be found to implement all of the projects by 2020.

In addition, the SRTC conducted analyses with and without the proposed Light Rail Transit (LRT) system. The LRT system would connect the Liberty Lake area and Spokane Valley to the Spokane Central Business District.

The financially constrained network was selected as the basis for developing the City of Spokane's LOS/CMS program. This is the most realistic scenario based on current funding for the region's transportation system. Therefore, the regional model reflecting that network was used for developing the concept and applying it to the three land use alternatives. Specific assumptions regarding the transportation system are presented in a later section of the report.

Identifying Corridors

Several criteria were considered in defining which facilities would be included in the LOS/CMS program. For consistency, the same arterials were used for all three land use alternatives. [Figure 2](#) shows the arterial routes included in the preliminary LOS/CMS program. They were defined using the following criteria:

Functional Classification. Most principal arterials in the City and its UGA are included in the LOS/CMS program. Principal arterials serve the major travel patterns within the City, connecting major activity centers. Except for the local freeway system, principal arterials also typically serve the highest traffic volumes, as well as accommodate major transit routes. Principal arterials also serve the most significant freight and goods movements within the City. Some principal arterials at the edge of the City or its Urban Growth Area (UGA) were not included since they are not serving major travel patterns. Key minor and collector roads were also added to the LOS/CMS network. These routes provide primary access to existing or potential growth centers or provided missing links to connect principal arterials.

Location. The LOS/CMS network covers travel corridors in all parts of the City and the Urban Growth Area. This coverage is needed to fully evaluate land use and transportation plans throughout the City and future growth or annexation areas.

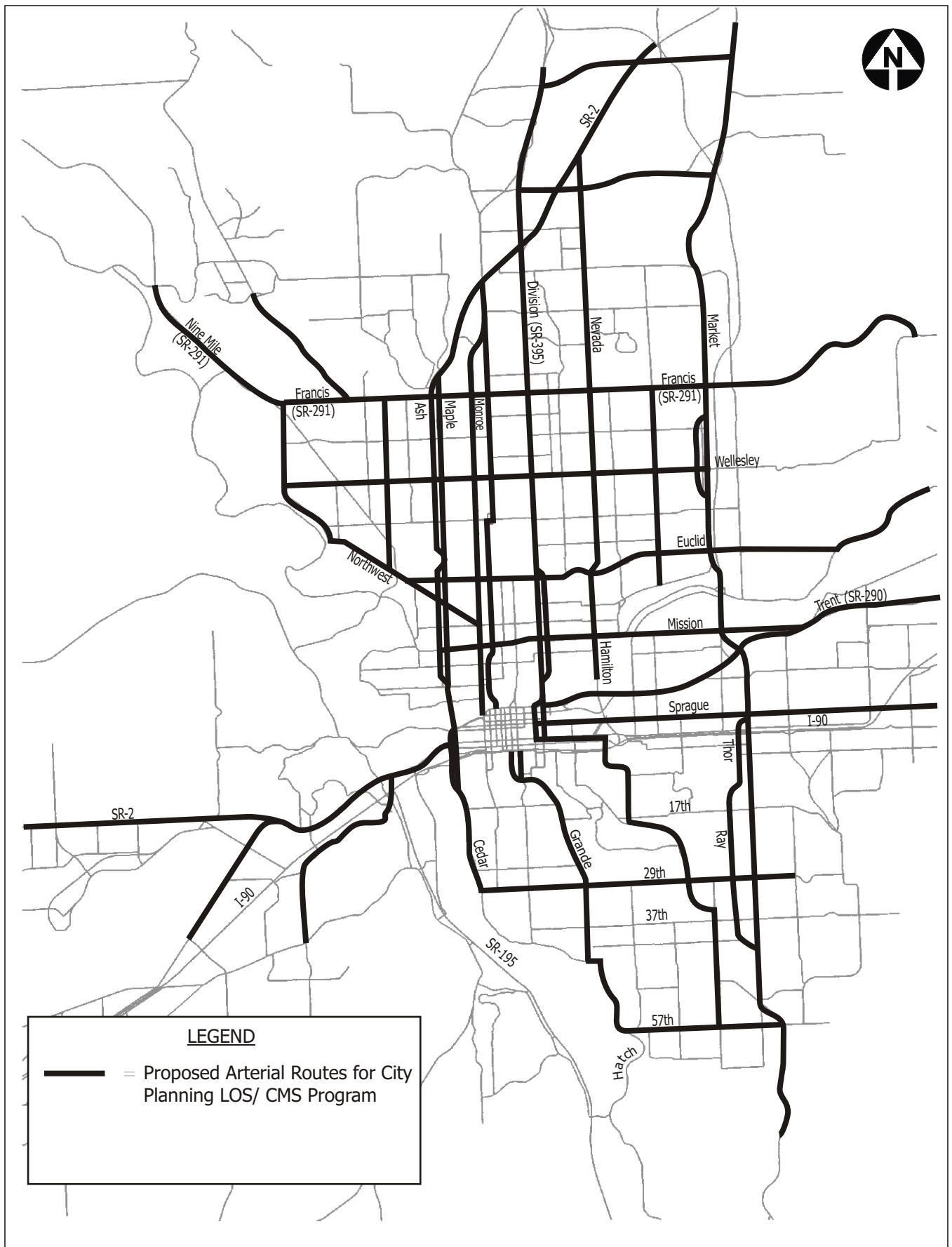
Central Business District. The arterial system within the central business district (CBD) is not included in the LOS/CMS program for evaluation. This primarily reflects the coding limitations of the CBD streets within the SRTC travel demand model. The CBD area that is not included in the LOS/CMS program is defined by the Spokane River, Division/Browne, I-90, and Maple-Ash.

State Facilities. Limited access facilities fully under WSDOT's jurisdiction, such as I-90 and SR-195, are not included in the City's preliminary LOS/CMS program. Other limited access facilities excluded from the analysis include SR 2 between Sunset Highway and I-90, and SR 395 north of Wandermere Drive. These facilities are fully under WSDOT control and operation and serve longer regional travel needs. Sections of these facilities are, however, included in SRTC's corridors. The City's LOS/CMS program does, however, include those state roads that are surface street arterials.

Defining LOS/CMS Routes

Each of the arterial routes included in the preliminary LOS/CMS program contain several intersections and roadway segments. Identifying and getting a LOS standard for each link would be very cumbersome and difficult to implement. Therefore, prior to setting specific LOS standards, the arterial routes were defined as route segments and aggregate arterial segments. This process allows the LOS/CMS evaluation to consider the effects of growth within a specific area, as well as the impacts of longer trips. An example of the use of route segments and aggregate segments is presented in the section on application.

Selecting Route Segments. The route segments were defined based on travel patterns, geographic features (such as the Spokane River), and the general characteristics of the three land use plan alternatives. The purpose was to define a reasonable number of segments that would be useful in managing growth in the City. Having too few segments in a corridor would essentially treat land uses throughout the corridor the same. Having too many segments would



make the concept more difficult to understand and implement. [Figure 3](#) shows the resulting segments for each arterial corridor. Each of these segments will have a LOS standard established based on its travel time and posted speed limit. The LOS standard will vary based on the land use plan alternative. Appendix A lists each route segment name and termini.

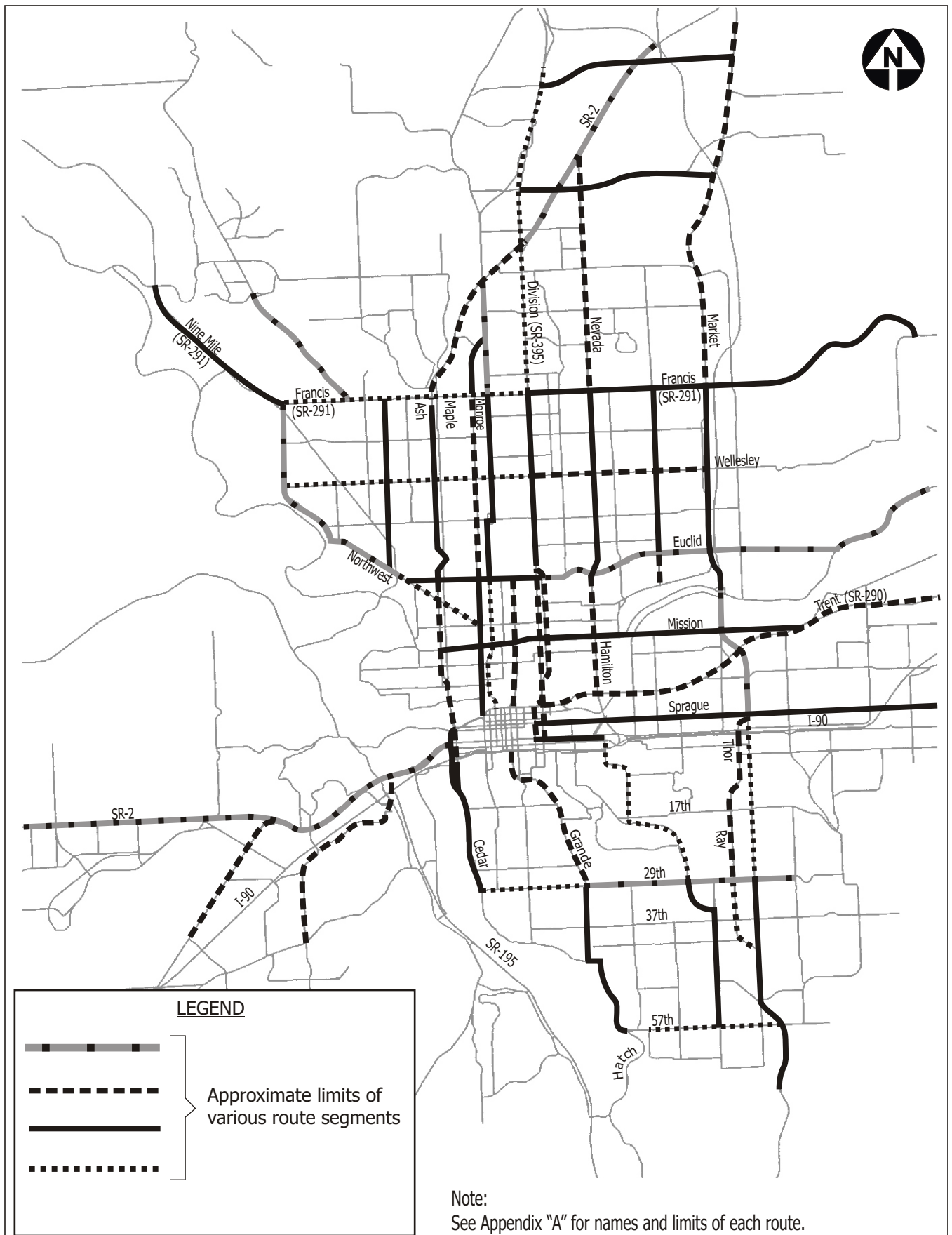
Aggregate Arterial Segments. The preliminary LOS/CMS concept also aggregates some of the arterial segments to ensure that transportation plans and development projects are consistent with the land use plan. By aggregating some of the arterial segments in key corridors, the LOS/CMS program can set more stringent standards for areas outside of the designated growth areas. Aggregation of segments was conducted in six of the most critical travel corridors for the City. These are shown in [Figure 4](#).

Setting the LOS Standard

The LOS/CMS standard is set in two parts. The first part establishes a base LOS standard that reflects the overall LOS/CMS concept for a particular land use alternative. The base LOS standard for each route segment can then be adjusted based on the availability of significant levels of transit service or non-motorized travel. This adjustment helps the LOS standard be responsive to land use plans and transportation programs that reduce the need for single-occupant vehicles.

Base Standard. The travel time standard for each corridor must reflect the land use plan strategy. Where growth is encouraged, longer travel times (slower speeds) are allowed. Higher travel speeds would need to be maintained for longer trips that connect to an area where growth is less desirable as defined by the land use alternative. This concept would limit growth in some areas but would allow development to occur in areas that are most consistent with the City's growth strategy. It also would allow the City to focus its transportation capital improvements to the areas that best support the growth strategy.

The LOS standards for each route segment would be set based on the arterial LOS per the Highway Capacity Manual (HCM). Arterial LOS is measured in terms of travel speed, as shown in [Table 2](#). The LOS of the arterial is related to the average speed of all through-vehicles along the route. It takes into account the number of traffic signals and all delays at intersections. It also takes into account the signal progression and impacts of driveway access/egress along the corridor.



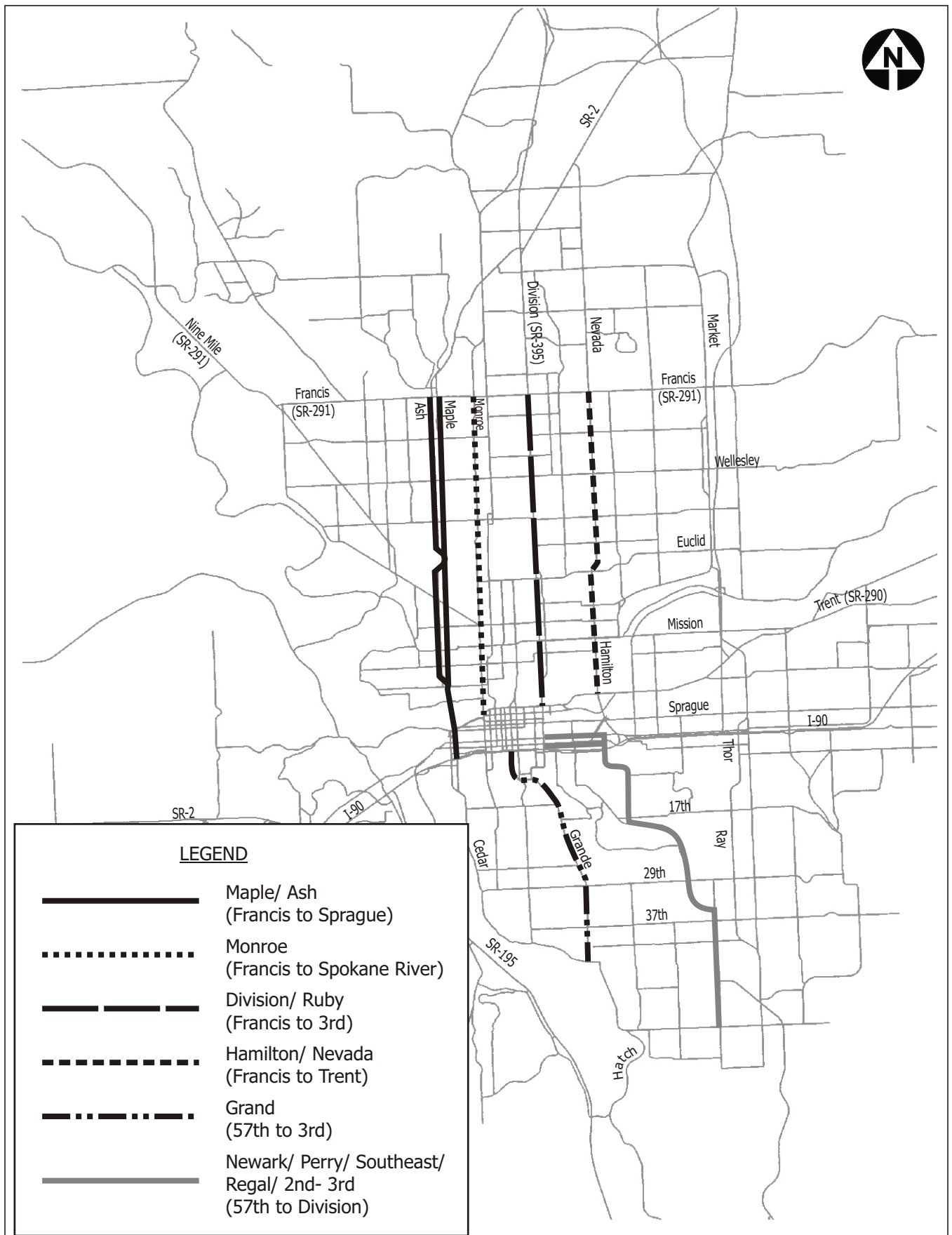


Table 2. Arterial Levels of Service

	Arterial Classification (or type)			
	I	II	III	IV
Range of free-flow speeds	45 to 55	35 to 45	30 to 35	25 to 35
Typical free- flow speeds	50	40	33	30
Level of Service	Average Travel Time			
A	≥42	≥35	≥30	≥25
B	≥34	≥28	≥24	≥19
C	≥27	≥22	≥18	≥13
D	≥21	≥17	≥14	≥9
E	≥16	≥13	≥10	≥7
F	<16	<13	<10	<7

Source: Highway Capacity Manual, Transportation Research Board, 1997.

The LOS standards are based on travel during the PM peak hour. This decision reflects the decision to use the SRTC travel demand model that is based on PM peak hour travel. It also reflects the time period when the most congestion generally occurs in the City.

Some general strategies were applied in setting the basic LOS standards. For each land use alternative, LOS E was set for links within designated growth areas. LOS C was established as the standard for all corridor links that primarily serve areas where growth is less desirable based on the land use plan. LOS D was set for links serving areas where growth is supported by the plan, but also serve as primary connectors to outlying districts, where growth is less desirable. Table 3 summarizes the general approach for setting the base LOS standard. The LOS standard for the aggregate arterial segments would typically be set based on the LOS of the segment with the best or highest (e.g. LOS C not LOS D) standard along the aggregate route.

Table 3. Concept for Setting LOS Standard on Designated Arterial Segments

Arterial Segment/Land-Use Plan Area	Base LOS Standard ¹	LOS Standard if Efficient Transit Service is Available ¹	Comment
Arterial segment serving area where growth is not supported	C	D	Typically outer ring of city
Arterial segment serving areas where growth is supported but connect to areas where growth is not supported by plan	D	E	Arterials serving as main routes between outlying areas and growth centers
Arterial segment serving areas where growth is supported or encouraged by plan	E	F	Urban centers or corridors where growth is focused

1. Travel speeds for each LOS range depend on arterial type which is based on the posted speed limit, see Table 2.

Adjustments for Alternative Travel Modes. Under the preliminary LOS/CMS program approach the base LOS standard would be adjusted to reflect the availability of significant, efficient, alternative transportation modes. For example, if good transit service is provided

(and shown to be used) a route segment that would have a base LOS C standard, would be modified to LOS D. This adjustment supports growth in areas where alternative transportation service is successfully reducing the need for additional general purpose capacity. Similarly, the speeds and standards for centers and/or corridors could be adjusted if densities, available facilities, and mix of land uses resulted in a significant percentage of walk and/or bike trips. At this time only a few adjustments have been made for transit, and no adjustments have been made for non-motorized travel. Table 3 shows how the base LOS standard would be changed for route segments with efficient transit service.

Figure 5 shows the arterial segments where the preliminary LOS standards are proposed to be adjusted to allow the level of service to decrease by one grade (e.g. LOS D to an LOS E) standard. These routes were selected based on a review of existing transit service in the City. The selection of these routes need to be coordinated with Spokane Transit to better reflect each of the land use alternatives and transit system plans.

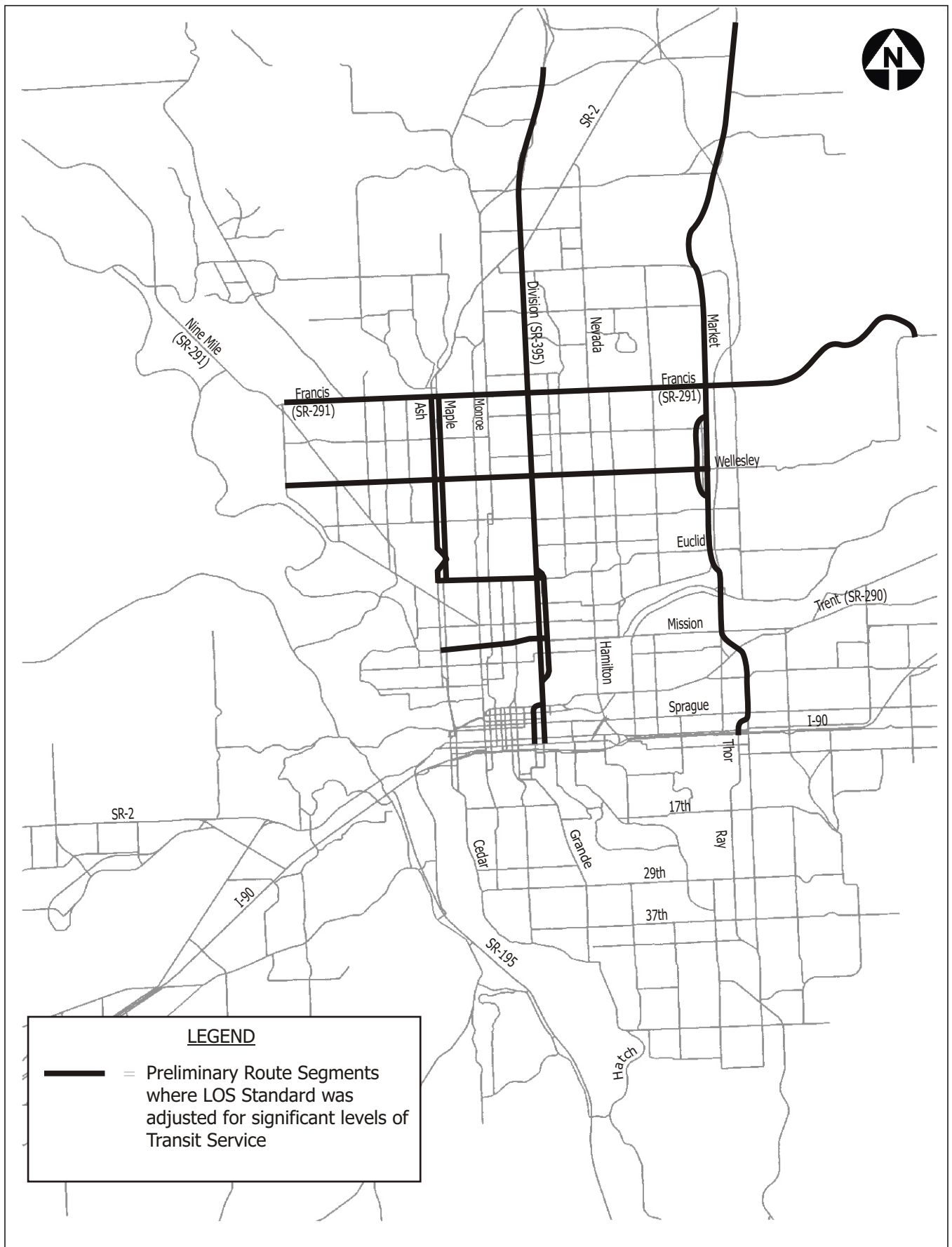
Implementation Approach

The LOS/CMS program concept has been developed based on the 2020 SRTC regional travel demand model. Prior to actual implementation the model tool will need to be refined to reflect actual travel times in the monitored corridors. A program for when the planning level test would be conducted also needs to be formalized. The following identifies strategies for implementing the program, including an example.

Measuring Travel Times. Actual travel time data are not currently available to adjust the SRTC travel demand model outputs for most of the corridors. As part of this preliminary evaluation, the SRTC model data for the 2020 PM peak hour were used without any adjustments. Model data were obtained for the financially constrained regional MTP network for each of the three land use alternatives. If available, use of the regional AVI tools would be desirable for collecting and summarizing existing travel times in each corridor. Other options include conducting travel time studies in each of the corridors using a “floating car” methodology. These studies could be done based on a priority basis, reflecting the overall importance of each corridor to the land use/transportation system plans.

The existing travel time data would be compared to the regional travel demand model estimates of travel times. If the model outputs and existing measurements track closely, then the model forecasts can be directly used to test future conditions. If actual travel times and model outputs are not relatively close, then the model outputs would need to be adjusted or the model recalibrated to travel times. Ultimately, recalibrating the model to reflect actual travel time data would be desirable for implementing the LOS/CMS program. However, this may take several years to accomplish, if SRTC pursues it at all. The model output travel times could be adjusted based on the relationship of actual travel times and the model estimates. This could be developed using regression analyses or other analytical methods. These relationships would then be applied to actual travel times/speeds to estimate future conditions for evaluating the land use/transportation plan scenario.

When LOS Test Would Be Conducted? If adopted, the planning LOS/CMS program would provide input to the City’s initial GMA Comprehensive Plan and to future changes proposed in the annual plan update processes. It also would be used by the City in defining



transportation system needs to provide adequate facilities. Therefore, the planning LOS/CMS evaluation would be conducted at least once per year. To be consistent, the City's program would be done at the same time as SRTC's annual update (August of each year). The LOS/CMS program results would identify transportation corridors that may be out of compliance within 6 to 10 years, enabling the City to prioritize and implement capacity or service enhancements to support desired growth patterns. It also would indicate to the City where it may be inappropriate to encourage or allow new development until transportation capacity or services can be increased. The City could use the annual evaluation to put moratoriums on growth in some subareas until adequate capacity is provided since development in those areas would result in travel times exceeding the adopted standards (see Development Review Level of Service Standards).

What Year would be Evaluated? Part of the annual evaluation would be based on a long-range horizon year, such as 2020. A long-range horizon would be used primarily in evaluating any significant changes to the City or SRTC transportation plans or land use plans.

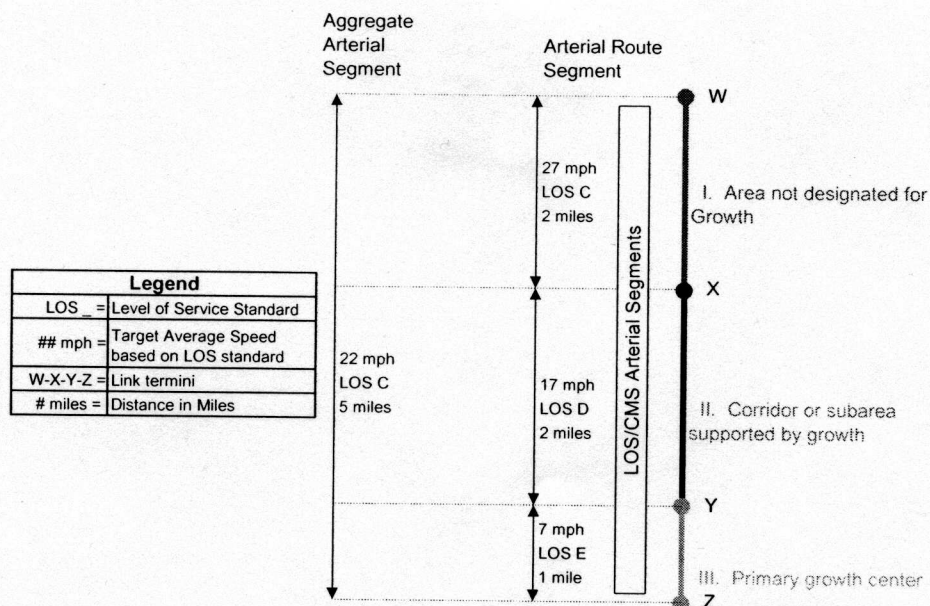
In order to support capital improvement programming and the development review LOS/CMS program, a shorter-range horizon also would need to be evaluated. The short-range horizon would build off of the SRTC's existing (1997) model. The model will be updated to reflect approved developments (both within and outside of the City). Transportation improvements funded for construction within six years would be added to the model network. The time period could be shortened, if desired by the City. Shortening the time period of the transportation projects would generally make the CMS program more restrictive.

Based on these adjustments, the LOS/CMS program would identify any short-range deficiencies in the City's transportation system. This information could be used to alter the six-year TIP to alleviate the deficiencies. If adding transportation projects does not eliminate the deficiency, then some developments would likely be denied, based on the Development Review LOS/CMS program (see next chapter).

Example Application of LOS/CMS Evaluation. Figure 6 provides an example of one arterial in the system. It contains three "route segments" and an "aggregate" corridor. In the example route segment W-X serves an area where growth is not desired; X-Y serves an area where growth is generally supported by the land use plan; and route segment Y-Z serves an area that is designated for growth. The three segments each were assigned a base LOS standard, per Table 3. The LOS standard, in terms of a travel speed was developed based on the posted speed limit per Table 2, and is shown on Figure 6.

The forecast travel times and resulting speeds would be compared to the LOS standard for each route segment. If the speeds fall below the standard then the link would be out of compliance and identified as deficient. In the example, route segments W-X, would meet the LOS C standard if it maintained a forecast speed of 27 mph or greater. Similarly, segments X-Y would meet the LOS D standard with a speed of 17 mph or greater. LOS E or better would be maintained on segment Y-Z with speeds of 7 mph or greater.

The aggregate arterial segment W-Z also have an LOS C standard and would be applied to growth in Area I. The LOS C for the aggregate corridor would require a minimum average speed of 22 mph for the 5 mile corridor. In the example, the aggregate segment analysis is only applied to area I; it could, however, also be applied to area II, depending on the land use plan alternative.



Conceptual Use of Travel Time/Speed Standards

Location Development Area	Link Tests to Evaluate			
	W-X	X-Y	Y-Z	W-X-Y-Z
Typical free flow speed	50 mph	40 mph	30 mph	50/40/30 mph
I. Area not designated for Growth	LOS C	LOS D	LOS E	LOS C
	27 mph	17 mph	7 mph	22 mph
	2 miles	2 miles	1 mile	5 miles
II. Corridor or subarea supported by growth	N/A	LOS D	LOS E	N/A
		17 mph	7 mph	
		2 miles	1 mile	
III. Primary growth center	N/A	N/A	LOS E	N/A
			7 mph	
			1 mile	

N/A = Not Applicable (Corridor not tested for growth in that subarea)

Application to the Comprehensive Plan Land Use Alternatives

The Planning LOS/CMS program would generally be applied to each of the Comprehensive Plan land use alternatives in a similar manner. The proposed program would evaluate the same corridors for each alternative, although the LOS standard for route segments and aggregate arterial segments would vary. The following presents an overview of the land use alternatives, the preliminary LOS standards established for each alternative, the resulting LOS deficiencies, and estimated costs to bring alternative into compliance with the preliminary standard.

Land Use Alternatives

The proposed LOS/CMS program was applied to each of the three Comprehensive Plan land use alternatives:

- *Current Patterns*
- *Focused Growth: Centers and Corridors*
- *Focused Growth: Central City*

The “*Current Patterns*” alternative reflects a condition where the City would apply the same growth practices that have occurred over the past 40 years or so. The result is a land use pattern that is much like what is within the City today. Growth would continue to move outward from the central business district in a diffused ring. Travel would continue to be primarily auto-dominated, similar to today.

The “*Focused Growth: Center and Corridors*” alternative concentrates growth in mixed-use district centers, neighborhood centers, employment centers and along transportation corridors. The higher densities are intended to support use of transit and non-motorized travel modes.

The “*Focused Growth: Central City*” alternative focuses growth in downtown Spokane and areas adjacent to downtown. It would add land uses to the downtown area to support and attract people to the area. It also supports residential growth in the downtown core, allowing people to live in the area without owning an automobile. Access to/from downtown by transit and non-motorized travel also would be supported.

Transportation System Assumptions

Each land use alternative was modeled by SRTC assuming the MTP’s 2020 “financially constrained” transportation system improvements are constructed. These improvements are listed in [Table 4](#), which is an excerpt from the Spokane Metropolitan Area Transportation Plan (MTP), SRTC, November 1999.

Table 4. Metropolitan Area Transportation Plan - 2020 Financially Constructed Improvement Assumptions

AGENCY	PROJECT TITLE & DESCRIPTION	TYPE OF WORK
Spokane County	University: Main to Mission	Widen to 3 Lanes
Spokane County	Harvard Road	WB Off-ramp and Loop Ramp
Spokane County	County Vista Road: Appleway to Henry	Construct 3-Lane Shouldered Arterial
Spokane County	Mission Avenue: McDonald to Sullivan	Widen to 3 Lanes
Spokane County	Bigelow Gulch: Urban Boundary to E. Weile	Widen to 4 Lanes
Spokane County	Sullivan Road: I-90 Interchange	WB Ramps; Reconstruct Off, new On-Ramp
Spokane County	Evergreen Avenue: Sprague to Sharp	Widen to 2 Lane Arterial to 5 Lanes
Spokane County	16 th Avenue: SR 27 to Sullivan	Widen to 3 Lane Arterial
Spokane County	16 th Avenue: SR 27 to Dishman-Mica Road	Widen to 3 Lane Arterial
Spokane County	Bigelow Gulch E. Weile to W. Weile	Widen to 3 Lanes
Spokane County	Bigelow Gulch E. Weile to Argonne Road	Widen to 3 Lanes
City of Spokane	Ray Street Crossover: 37 th to Freya	New Arterial
City of Spokane	Post Street Bridge Replacement ¹	Construct Lincoln Street Bridge
City of Spokane	Five Mile Road: Austin to Lincoln	Increase Capacity
City of Spokane	Hatch Road: 57 th to SR 195	Reconstruct to Arterial Standards
WSDOT	Harvard Road Interchange	Modify and Realign Ramps
WSDOT	North-South Corridor: Francis to Hawthorne	Construct 2 Lanes
WSDOT	SR 290: Francher to Sullivan	Provide Center Left Turn Lane
WSDOT	I-90: Argonne to Sullivan	Construct and Add Lanes
WSDOT	North-South Corridor: Hawthorne to 395	Add Lanes – 2 Lanes NB
WSDOT	SR 195: Interchange at Meadowlane	Construct New Arterial and Frontage Road
WSDOT	SR 904: College Hill Road to Cherry	Construct Interchange
WSDOT	Harvard Road: I-90 to Bridge	Add Lanes
WSDOT	Trent (SR 290) Re-alignment: CBD to Hamilton	Re-align Existing Arterial on New Alignment
STA	Northside Transit Center & Operating Base	New Transit Facilities
STA	Southside Transit Center & Operating Base	New Transit Facilities
STA	South Valley Corridor Light Rail System	New Light Rail System

Source: Spokane Metropolitan Area, Metropolitan Transportation Plan, SRTC, November 1999 and Year 2000-2002 Regional Transportation Improvement Program, October 1999 and 10ECRP20.LLX

1. The Spokane City Council directed deletion of the Post Street Bridge replacement project (Lincoln Street Bridge) from the financial feasibility study. SRTC is conducting a study to determine a new capacity program for the corridor.

The “financially constrained” network includes four projects listed as the City of Spokane responsibility. All but the Hatch Road improvement are part of the proposed LOS/CMS corridors. The Post Street Bridge replacement project is located just north of the downtown core. Although it is part of the MTP financially constrained network, it has been reconsidered by the City Council and has been dropped from the regional plans. However, the deletion was made too late for consideration in regional financially constrained transportation plan. SRTC is currently studying options for capacity enhancements in the corridor. For purposes of this analysis, the Post Street Bridge replacement has been assumed for all alternatives.

The Ray Street, Five Mile Road, and Hatch Road projects are all located near the existing City limits and are still active on the City's plans.

Several of the WSDOT projects also are within or adjacent to the City. A major improvement affecting the City are the two North-South Corridor projects. These projects would connect between Francis and SR 395 in northeast Spokane. This would provide an alternative north-south route from I-90 to north Spokane.

In addition to evaluating the three land use alternatives on the "financially retrained" network, SRTC modeled the 2020 *Current Patterns* alternative on the existing or "No Action" network. This network includes no significant capacity improvements. It was evaluated since it provides a baseline condition for comparing alternatives.

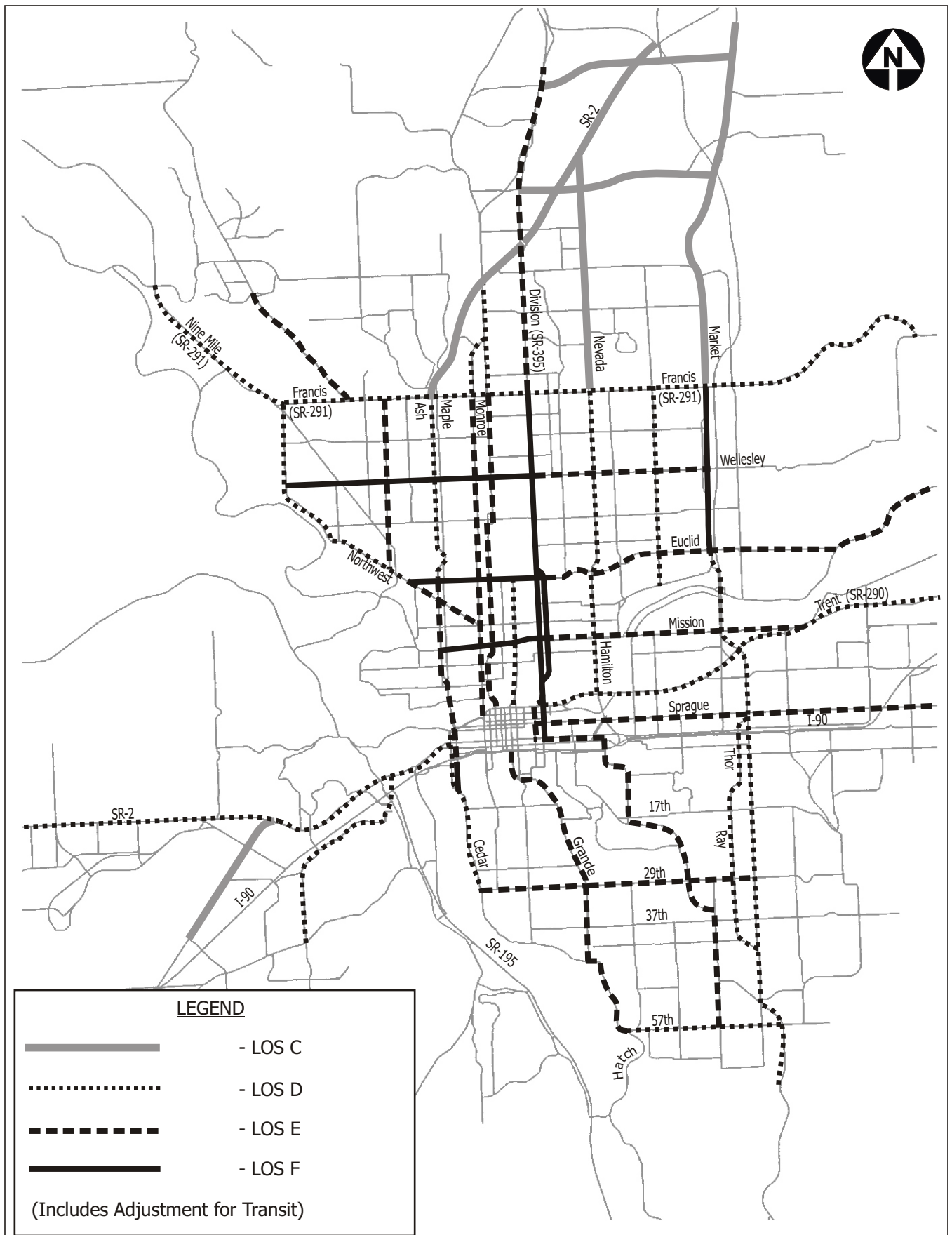
LOS Standards

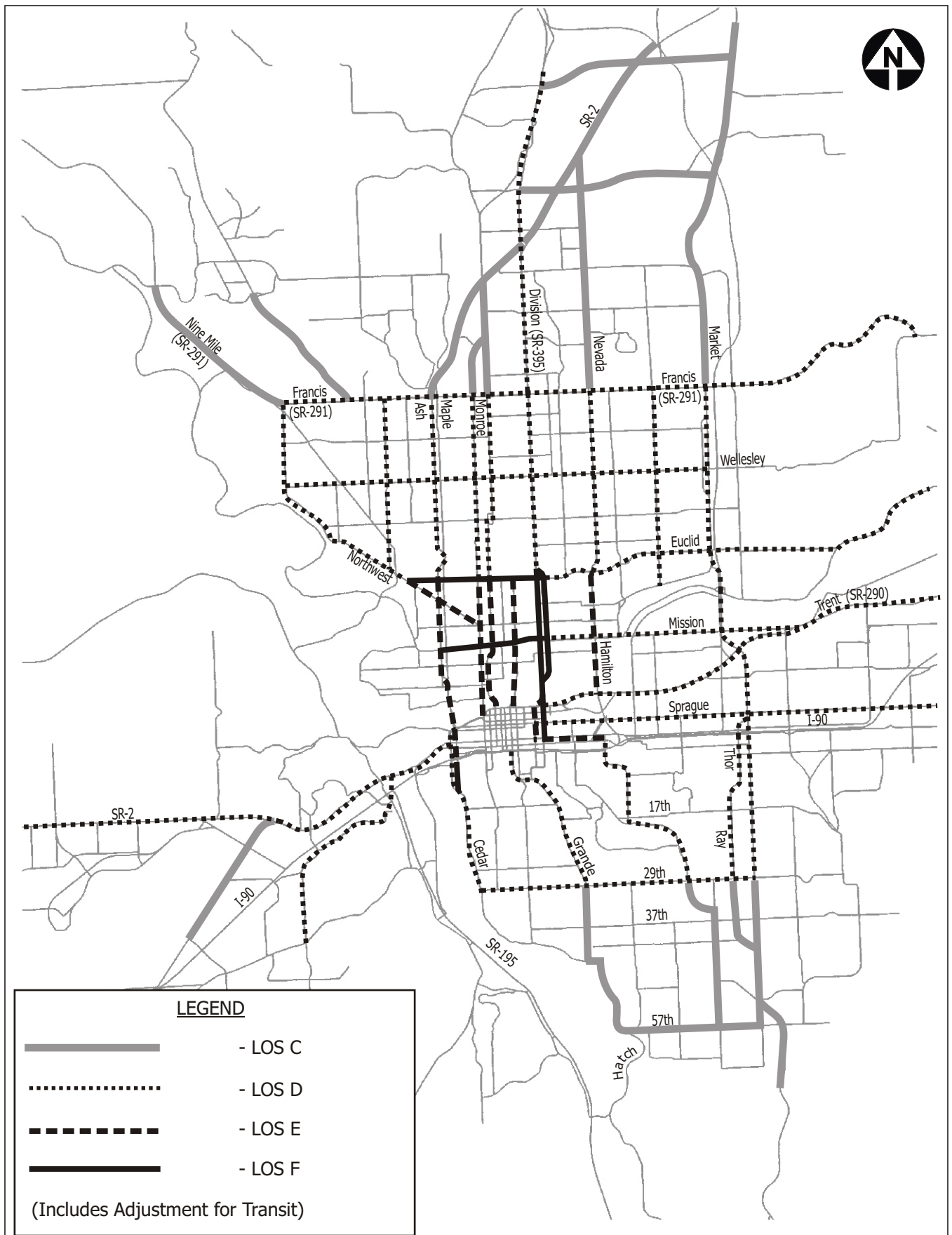
Assigning the preliminary LOS standards for the three alternatives took into account the overall objectives of each of the land use plans. [Figures 7, 8, and 9](#) show the draft route segment LOS standard for the *Current Patterns*, *Focused Growth: Centers and Corridors* and *Focused Growth: Central City Alternatives*, respectively. The LOS standard shown on the figures includes the adjustments to reflect the availability of transit (see [Figure 5](#)). As previously illustrated in [Table 3](#), the transit adjustment results in the LOS standard decreasing by one grade in these corridors (i.e. LOS C to LOS D, LOS D to LOS E or LOS E to LOS F).

The base LOS standard for the *Current Patterns* was established as LOS D for all route segments. This reflects current policies which do not attempt to direct growth to any specific areas. It also allows for moderate congestion levels anywhere in the City. Where efficient transit service is available (see [Figure 5](#)), LOS E would be allowed. This adjustment is shown on [Figure 7](#).

As shown in [Figure 8](#), the LOS standard for the *Focused Growth: Centers and Corridors* alternative varies from LOS C to LOS F. LOS C would be assigned to the outermost route segments where no mixed-use centers or corridors are identified in the land use plan. LOS D was assigned to the route segments that serve travel between the identified centers and corridors. A base LOS D also was assigned to some major east-west routes providing access to the City of Spokane. LOS E was assigned to the route segments serving the centers and corridors, including the central business district. This allows slower speeds and more congestion along these routes. This is consistent with the land use pattern, which would support transit, pedestrian, and bicycle travel along these routes. Applying the one-grade decrease in the LOS standard for transit corridors, some of the route segments serving designated growth areas would be allowed to operate at LOS F.

The base LOS standard for the *Focused Growth: Central City* alternative was set as a series of rings. LOS E is allowed in the ring immediately adjacent to the downtown core. This supports the plan concept for higher densities adjacent to the downtown area. LOS D was established for the route segments from Francis on the north to 29th on the south. Most of this area is within relatively close proximity to the downtown area (within 1 to 7 miles). Growth in these areas would be able to access the downtown area in a reasonable amount of





travel time. Route segments in the outer part of the City and most of the UGAs would have LOS C assigned. This could discourage growth in these areas, consistent with the land use plan. One exception to the rings, is Division Street north of Francis which also was assigned LOS D. This exception was made in order to recognize the key function Division Street plays in the City's transportation system. Adjustments for transit were made to the route segments (Figure 5), to arrive at the preliminary LOS standard for route segments in this alternative, as shown on Figure 9.

2020 LOS Deficiencies

Application of the LOS/CMS program to each of the land use alternatives resulted in some route segments being deficient compared to the draft standards. The deficiencies differ for each of the alternatives, with the *Current Patterns* on the No Action scenario having the greatest number of deficiencies. This section summarizes and compares the number of deficiencies by alternative. However, just because a route segment is deficient does not necessarily mean the entire roadway needs to be improved. Forecast PM peak hour travel speeds may be only slightly below the LOS standard. Therefore, spot intersection improvements on widening key segments of a corridor may be enough to meet the LOS Standards. The type and costs of improvements needed to meet the preliminary LOS standards are presented later.

Current Patterns on No Action

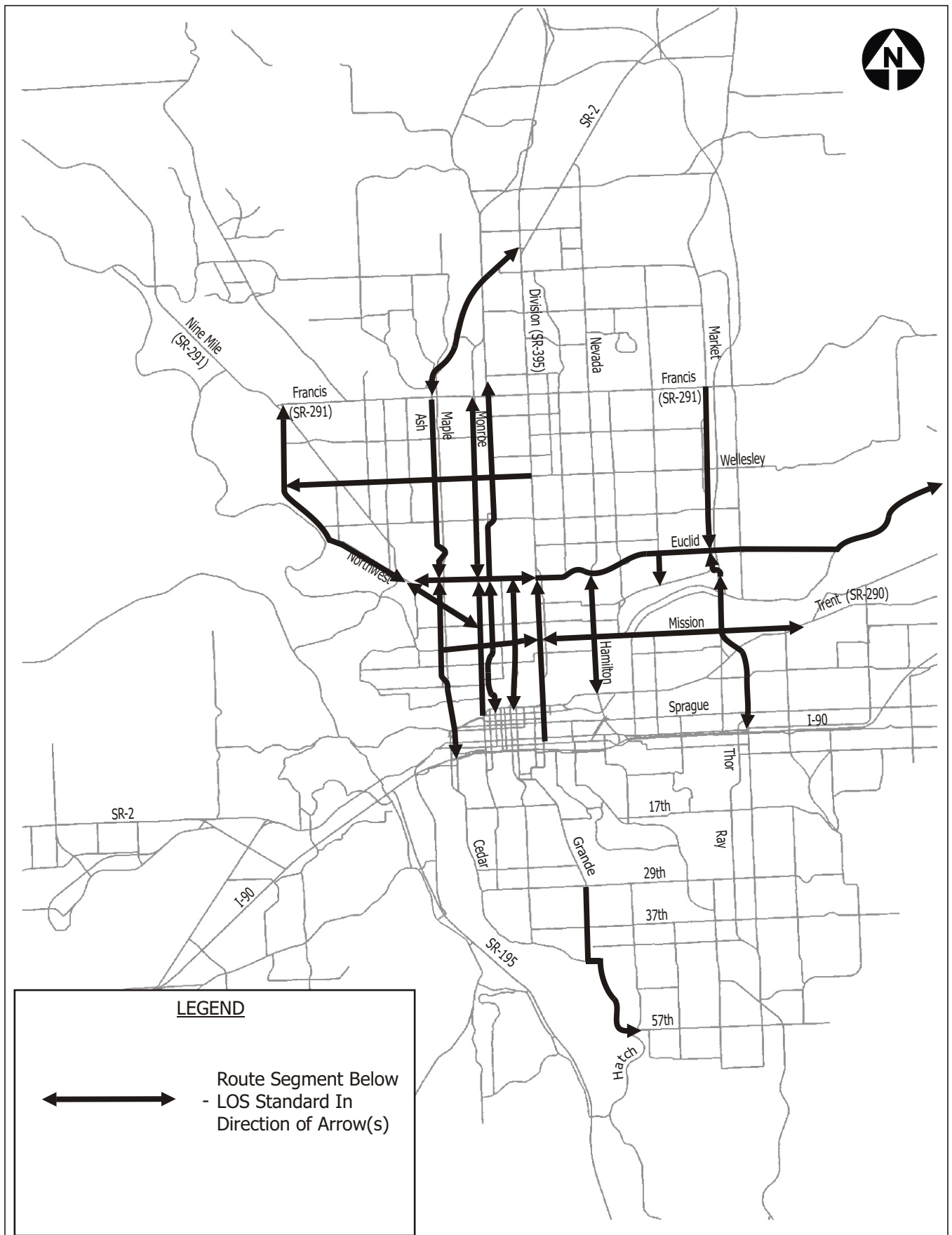
Figure 10 shows the route segments that would not meet the level of service standard for the *Current Patterns* alternative on the SRTC No Action transportation network. Under this scenario all of the north-south route segments between I-90 and the Buckeye/North Foothill/Euclid corridor would not meet the LOS standard. North of the Buckeye/North Foothill/Euclid corridor Market, Post, Monroe, Maple/Ash, and Northwest/Assembly would be deficient. SR 2 would also be below the standard between Francis and Division. Many of the north-south route segments, especially those serving the CBD, would not meet the standard in both travel directions during the PM peak hour.

Division Street, north of Mission Street would meet the LOS standard with or without the adjustment for transit. This is an important corridor serving major north-south travel. Recent improvements would meet the long term needs along Division Street even without the proposed new North-South corridor.

East-west corridors identified as deficient for this scenario include Mission, Buckeye/North Foothill/Euclid/Frederick/Upriver corridor, and Wellesley. These routes serve key east-west travel patterns north of I-90.

South of I-90, only Grand between 29th and 57th is below the LOS D standard.

As summarized in Table 5, a total of 22 of the 58 route segments would not meet the LOS standard for this scenario. This represents 44.4 miles of arterial routes that would be below the preliminary LOS standard. The adjustment to the LOS standard for transit does not change the number of deficient route segments. Without the addition of capacity, as defined



in the financially constrained network, significant congestion will result. The congestion will be most pronounced on north-south routes.

Three of the aggregate arterial segments would also be below the preliminary LOS standard. The three aggregate arterial segments that fall below the standard are all north-south routes connecting the CBD to Francis Street. These deficiencies could keep development from occurring in the north part of the City unless improvements are made.

Table 5. 2020 PM Peak Hour LOS Deficiencies Summary

Route Segments	Alternative							
	Current Patterns on No Action Network		Current Patterns on Financially Constrained Network		Focused Growth: Centers and Corridors on Financially Constrained Network		Focused Growth: Central City on Financially Constrained Network	
	W/O Transit Adjustment	With Transit Adjustment	W/O Transit Adjustment	With Transit Adjustment	W/O Transit Adjustment	With Transit Adjustment	W/O Transit Adjustment	With Transit Adjustment
Number of Deficient Route Segments								
North-South ^{1,3}	17 ¹	17 ¹	10 ³	10 ³	9 ³	8 ³	9 ³	8 ³
East-West ²	5	5	5	2	5	2	5	3
Total Number^{4,5}	22	22	15	12	14	10	14	11
Deficient Route Segments (Miles)								
North-South	29.4	29.4	13.7	13.7	12.3	10.4	13.2	11.3
East-West	15.0	15.0	19.8	3.5	19.8	3.5	20.4	5.3
Total Miles^{4,5}	44.4⁴	44.4⁴	33.6⁵	17.3⁵	32.2⁵	13.9⁵	33.6⁵	16.6⁵
Aggregate Segments Number of Deficient ⁶	3	3	1	1	1	1	1	1

1. Total number of North-South route segments for no action network is 38 covering 79.3 miles of roadway.

2. Total number of East-West route segments is 20 covering 68.9 miles of roadway for all alternatives.

3. Total number of North-South route segments for financially constrained network is 39 covering 80.1 miles of roadway.

4. Total number of route segments for no action network is 58 covering 148.2 miles of roadway.

5. Total number of route segments for financially constrained network is 59 covering 149.0 miles of roadway.

6. Total number of Aggregate Segments is 6; mileage is included in route segment summary.

Current Patterns on MTP Financially Constrained Network

Addition of the improvements in the SRTC financially constrained network significantly reduces the number and extent of the deficient route segments. Fifteen route segments would be deficient without the adjustments for transit. Twelve segments would be deficient after application of the transit adjustment. The transit adjustment only affected east-west route segments. A total of 17.3 miles of route segments would be deficient under this alternative, with the transit adjustment. This is a significant improvement over the *Current Patterns on the No Action Network*, which had 44.4 miles of deficient route segments.

As shown in [Figure 11](#), the north-south corridors between I-90 and Buckeye/North Foothill/Euclid will still fall below the LOS standard. The degree of the deficiency along many of these segments is lower with the MTP Financially Constrained network than those identified under the No Action Network. North of Buckeye only northbound Post is deficient.

With the adjustment for transit service, Buckeye between Northwest and Division would fall below the LOS standard. This route segment would be deficient in both directions. This section of roadway would operate with travel speeds in the LOS F range compared to the LOS D standard.

The Grandview/16th/Lindeke east-west corridor would not meet the LOS standards. This corridor met the standards under the No Action scenario. The SRTC model in the West Plains area is based on a very skeletal transportation network. This results in significant traffic shifts between alternatives. The level of service deficiency may disappear when a more complete local collector system is developed to support the forecast growth in the subarea. With the exception of I-90, all of the existing roads in the subarea are rural roads that will need to be reconstructed to meet urban street design standards to accommodate the higher traffic volumes.

No other east-west corridors would fall below the standards. Grand between 29th and 57th also would meet the standard under this option. This corridor was below the standard under the *Current Patterns* on the No Action network scenario.

Hamilton/Nevada between the Spokane River and Francis would be the only aggregate corridor below its LOS standard. This corridor would operate at an overall LOS E travel speed compared to the LOS D standard.

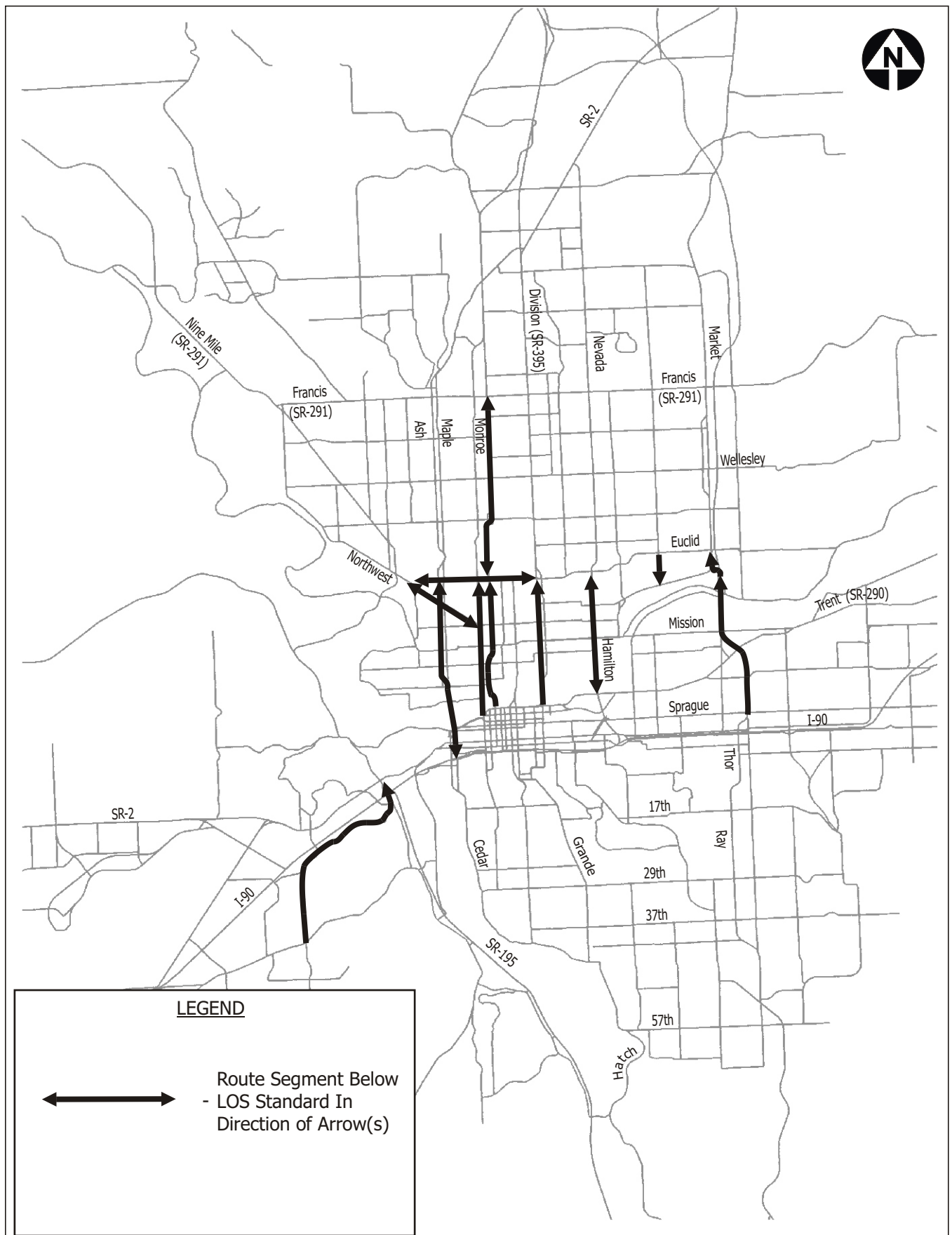
Focused Growth: Centers and Corridors on MTP Financially Constrained Network

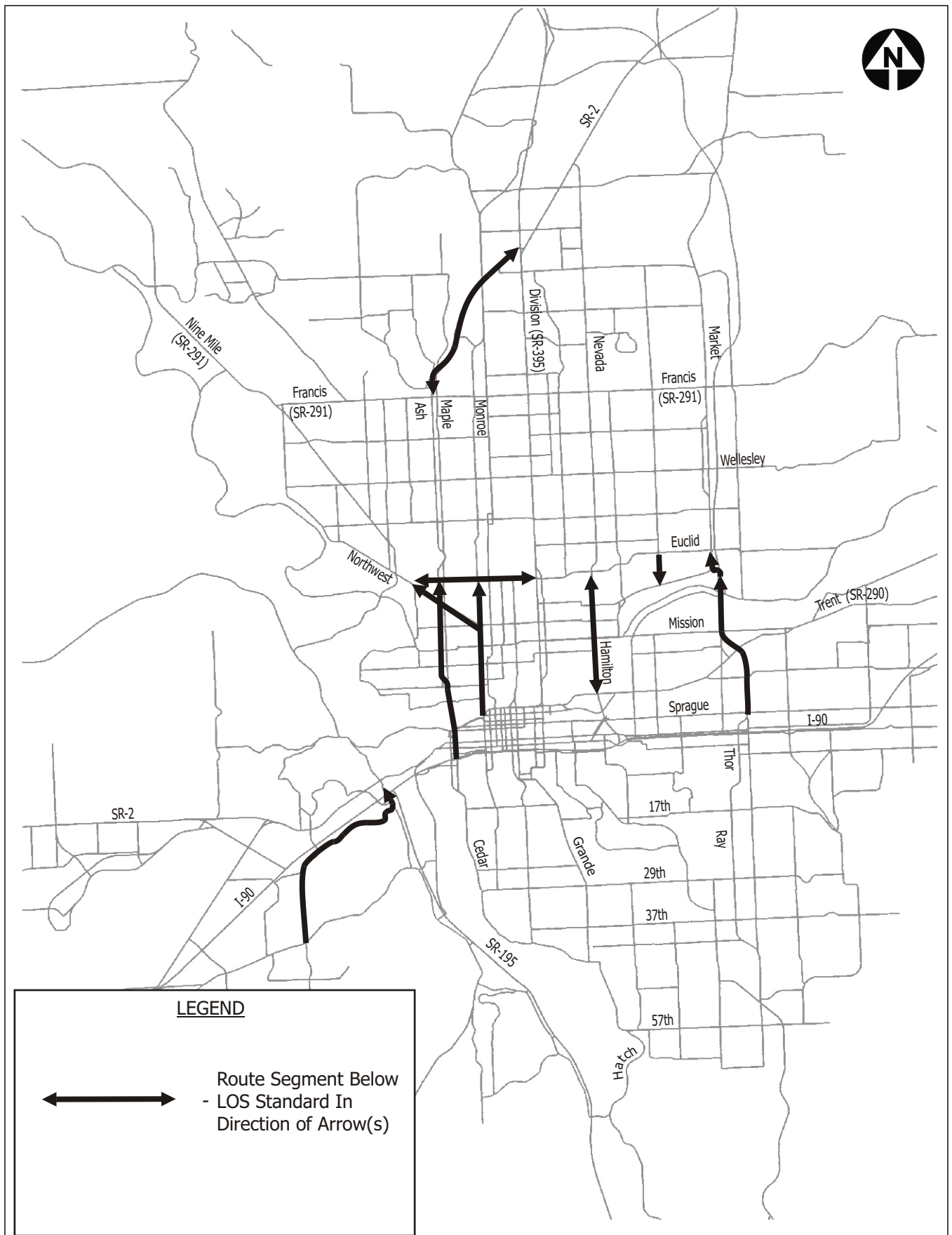
As shown in Table 5, a total of 10 route segments fall below the preliminary standard, after adjustment for transit. These cover 13.9 miles of arterials (as shown on [Figure 12](#)). With the transit adjustment to the LOS standard, only one-half of the north-south corridors between I-90 and Buckeye/North Foothills/Euclid would be below the standard. This compares to all of these routes being below the standard under the *Current Patterns* alternative (see [Figure 11](#)).

The section of Buckeye between Northwest and Division also is below the preliminary LOS standard. This section would operate at LOS F compared to the preliminary LOS E standard. The route segment on Northwest between Maple/Ash and Monroe would also operate at LOS F (westbound) during the PM peak hour. This would be below the LOS E standard.

The SR 2 extension of Maple/Ash north of Francis is also shown to be deficient for this alternative. The standard for this segment was set as LOS C, while the traffic model results in LOS D for both directions.

The Grandview/16th/Lindeke corridor in the southwest part of the City also would fall below the LOS D standard. This is similar to the *Current Patterns* alternative.





Focused Growth: Central City on MTP Financially Constrained Network

As shown on [Figure 13](#), the results of the *Focused Growth: Central City* alternative are similar to the *Focused Growth: Centers and Corridors* alternative. After the adjustment for transit, the *Focused Growth: Central City* alternative has two additional route segments that are identified as deficient compared to the *Focused Growth: Centers and Corridors* alternative. These are Lincoln between Buckeye and Francis and 57th between Hatch Road and the Palouse Highway. These differences reflect the higher level of service standards for these routes under this alternative compared standards for the *Focused Growth: Centers and Corridors* option. Travel speeds on Lincoln, between Buckeye and Francis, are forecast to be just under the LOS D threshold set for this alternative. This deficiency is marginal and would not require extensive improvements to meet the LOS D standard. 57th has recently been improved by the City. The 2020 forecasts result in PM peak hour travel speeds within 1 mph of the LOS C standard. It is not likely that additional significant improvements would be implemented in this corridor by 2020.

The addition of these two deficient corridors is partially offset since Monroe between Buckeye and the Spokane River would meet the LOS E standard under the *Focused Growth: Central City* alternative. This route segment is forecast to be out of compliance under the *Focused Growth: Centers and Corridors* alternative. LOS E was also the standard under the *Focused Growth: Centers and Corridors* alternative; however, this alternative results in less congestion along this section of Monroe.

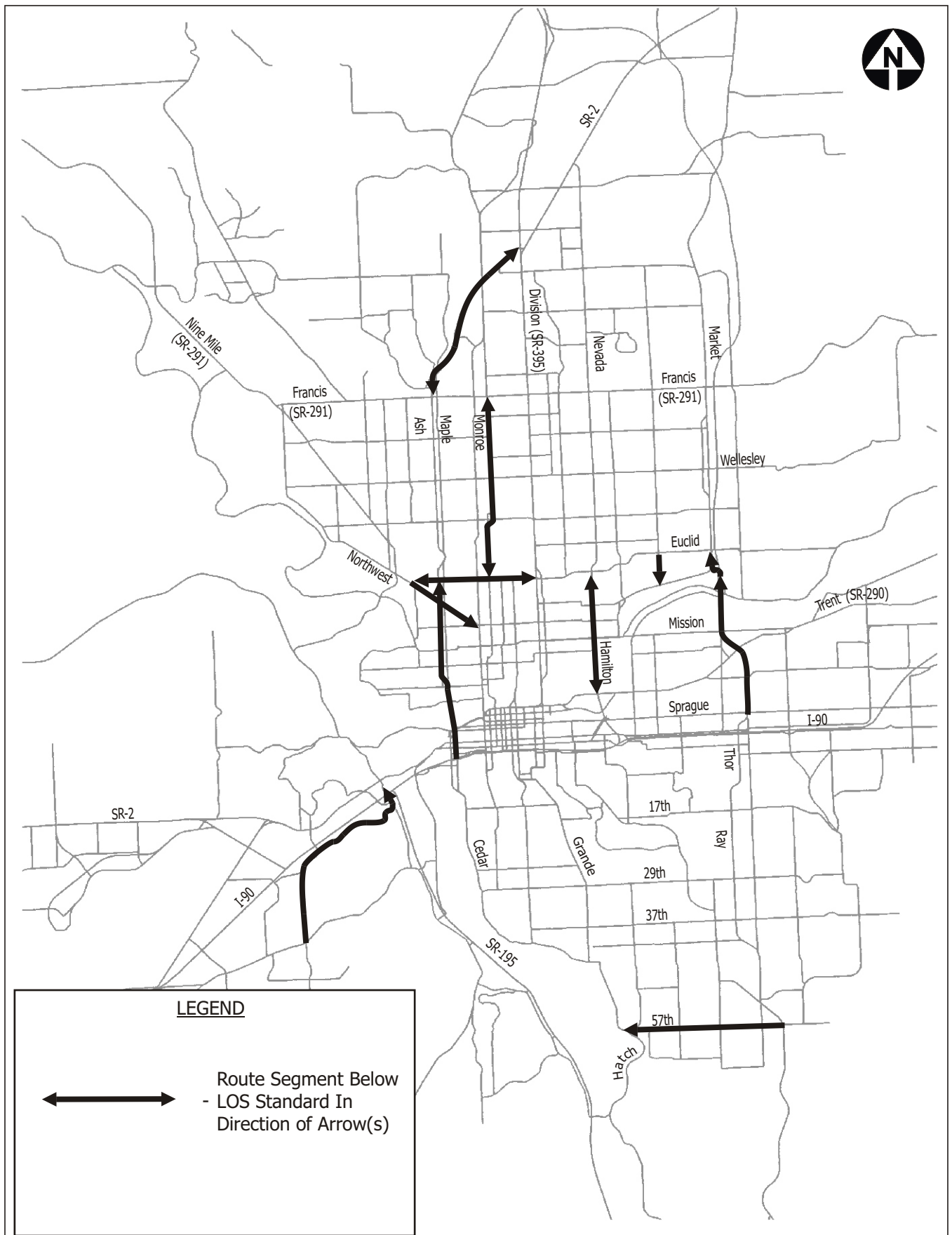
With the adjustment for transit, this alternative results in 11 route segments being below the preliminary LOS standard. These segments cover 16.6 miles of arterials.

Similar to the *Focused Growth: Centers and Corridors* alternative, one aggregate arterial segment would fall below the standard. This is Hamilton/Nevada between the Spokane River and Francis.

Costs for Bringing Alternatives into Compliance

There are several possible approaches for bringing the alternatives into compliance. Since the standards are preliminary, both in concept and in their application to each land use alternative, some deficiencies could be eliminated by simply revising the standards. This philosophy needs to be discussed in the public forum as part of selecting a preferred land use plan and concurrency standard. It may be reasonable to allow more congestion in some of the corridors based on the overall vision for the City's growth. Additional route segments also could be identified as transit or non-motorized corridors which would also change the LOS standard.

Other options to eliminate the deficiencies include defining intersection and roadway improvements that would add capacity to the system. This could be done by improving the deficient facility. It also could be achieved by providing improvements in parallel corridors that would divert traffic from the deficient facility. The added capacity provided by the Financially Constrained network was shown to greatly reduce the number of deficiencies for the *Current Patterns* alternative. Implementation of some of the SRTC's Full Build Network



projects would also likely eliminate some, if not all, of the identified deficiencies for the three land use alternatives.

For purposes of comparing alternatives, potential improvement strategies for reducing delays and travel times were restricted to the deficient corridors. As previously noted, the full route segment may not need to be fully improved to meet the standard. In some cases, the greatest delays are at intersections and therefore, major intersection widening or signal interconnects would be appropriate. In other cases, part or all of the road segments would need to be widened to provide more capacity.

Table 6 summarizes the planning level costs of the potential improvements to bring the three alternatives into compliance. The *Current Patterns* on the No Action network was not evaluated, since improvements the regional MTP the Financially Constrained network were assumed for all three action alternatives. Costs of improving WSDOT facilities for the MTP within the City are not included, but would be the same for all alternatives. The improvements for all scenarios assume the adjustment of the LOS standards to reflect the transit corridors shown on Figure 5.

The cost estimates are based on 1999 City data from actual projects. A “ballpark” cost of \$1.5 million per mile was used for all road widening. Major intersection improvements were estimated at \$250,000 for each intersection approach. If only two approaches need to be improved, then \$500,000 would be assigned as the improvement cost.

Costs for the four improvements included in the MTP financially constrained network were included for each scenario. The \$49 million estimate includes \$38 million for the Post Street Bridge replacement. As previously noted, the City Council has directed deletion of this project from the MTP financially constrained plan. SRTC is conducting a study to identify alternative corridor improvements. At this time, the analysis of costs to resolve deficiencies related to LOS standards includes the \$38 million for all three land use alternatives.

Table 6. Order of Magnitude Improvement Costs¹

	<i>Current Patterns</i>		Focused Growth: Centers and Corridors		Focused Growth: Central City	
	Number	Costs \$1000's	Number	Costs \$1000's	Number	Costs \$1000's
MTP Financially Constrained Network Improvements ²	4	\$49,200	4	\$49,200	4	\$49,200
Major Intersection Improvements	9	\$2,250	18	\$4,500	18	\$4,500
Roadway Widening	6.2 Miles	\$9,300	3.1 Miles	\$4,650	2.9 Miles	\$4,350
Total		\$60,750		\$58,350		\$58,050
^{1.} All alternatives reflect SRTC MTP financially constrained network						
^{2.} Cost estimate includes \$38 million for Post Street Bridge replacement which has been deleted by the City from MTP Financially Constrained Network.						

The *Current Patterns* alternative would require an estimated \$2 to \$3 million more in transportation improvements than the other two alternatives. The higher costs are needed

since over 6 miles of roadway widening would be necessary to bring the *Current Patterns* option into compliance. This alternative requires improvements to more than three additional miles of roadway compared to the two Focused Growth strategies. This reflects the change in LOS standards to allow more congestion in some areas under the two Focused Growth alternatives.

The two Focused Growth options are very similar in costs, with the *Centers and Corridors* option being \$300,000 more than the *Central City*. Given the rough approximations used in defining improvements and cost estimates, this difference should not be considered significant.

It should be noted that the costs for improvements to WSDOT or Spokane County roadway, or the addition of transit service by STA are not covered by these estimates. In order to meet the standards, the full MTP financially constrained improvement program would need to be implemented.

Future Refinements

The proposed Planning LOS/CMS program will require refinements prior to implementation for the City's ongoing use. Prior to refining the process, the City must make a determination that the approach and overall concept are consistent with its overall vision. The process is generally consistent with the regional SRTC LOS/CMS program; however, the City's program would be applied to a greater number of facilities.

The City's program also would be used as part of the development review LOS/CMS program, described in the next section. The development review LOS/CMS program would be used to determine if development projects should be denied due to lack of adequate transportation facilities. Therefore, the City's LOS/CMS program must be reliable, consistent in application, and kept up-to-date.

The Planning LOS/CMS program is only conceptual at this time. Its application to the land use alternatives evaluation is based solely on 2020 PM peak hour model data provided by SRTC. Prior to implementation, the City in conjunction with SRTC, should obtain actual travel time data for the corridors and update the regional model calibration. A process for adjusting model travel times to reflect the actual travel times, also would be implemented. This process would be applied to the forecast travel times to evaluate the LOS/CMS for future years.

In reviewing the alternatives, City staff, elected officials, SRTC, STA, or others may recommend changes to the LOS standards for a particular alternative or arterial segment. These changes may affect the base standard or the adjustments for transit or other travel modes. Any changes will affect the above comparison of the alternatives.

The MTP financially constrained network includes a project to replace the Post Street Bridge. The City of Spokane has dropped this project from its TIP and the MTP. The effects of this project change would require SRTC to remodel each action alternative and re-evaluate the levels of service.

In addition, the City should work with SRTC to conduct new model runs which include the improvements identified to eliminate the LOS deficiencies. This would be used to validate that the improvements fully eliminate the noted deficiencies.

LEVEL OF SERVICE/CONCURRENCY MANAGEMENT SYSTEM CONCEPT PROGRAM FOR DEVELOPMENT REVIEW:

This section of the City's LOS/CMS program would be applied to meet the GMA and SRTC requirements that minimum LOS thresholds be maintained with each development. If minimum thresholds cannot be assured within six years, then the development must not be approved at that time. The following presents desired goals for the program, a conceptual strategy, and an overview of its application to the three land use plan alternatives.

Goals and Objectives

Key goals and objectives for the development review level of service standard include:

- Ensure that development can be supported by an adequate transportation system.
- The development review program should support the land use and transportation elements of City's Comprehensive Plan.
- Meet City's responsibility for SEPA review related to levels of service.
- Apply development review standards consistently.
- Provide input to City's transportation facilities planning and programming processes.
- The development review LOS standard process should be relatively easy to apply and understand.

Overview of Conceptual Strategy for Development Review

The conceptual LOS/CMS strategy for development review consists of two parts:

- Evaluate consistency with City Comprehensive Plan and Planning LOS/CMS standards
- Evaluate intersection LOS/CMS in local vicinity of project. This includes identifying facilities to be evaluated, setting the standard, and defining improvement strategies for mitigation.

Figure 14 provides a schematic flow chart of the conceptual process development review LOS review process.

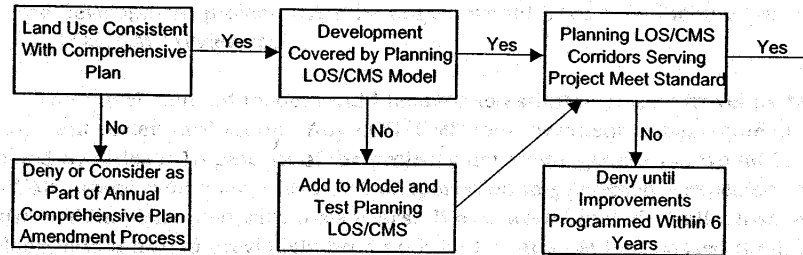
Evaluate Consistency with City Comprehensive Plan and Planning LOS/CMS Standard.

One of the first tests that should be done is a check on whether the development application is consistent with the land use element of the Comprehensive Plan. This step also would confirm that the forecast travel demand model (2020 or some other horizon year) has

allocated sufficient growth in trips to accurately reflect the development within the City's Planning LOS/CMS program evaluation.

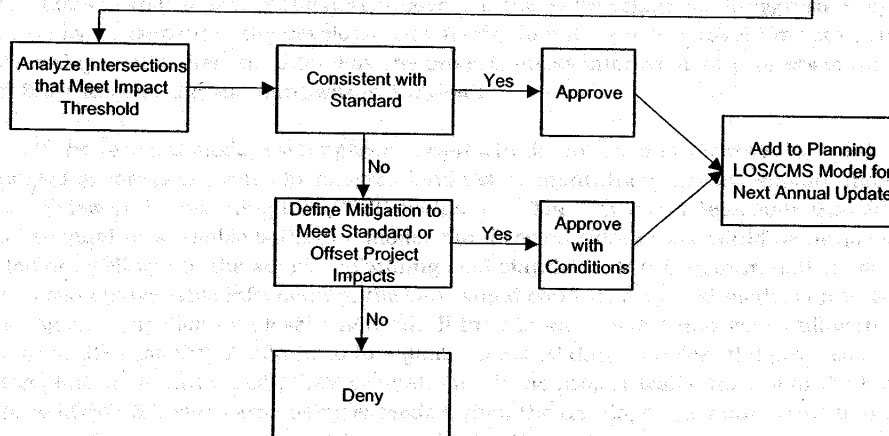
Part I.

Check Consistency with Comprehensive Plan and Planning LOS/CMS Standard



Part II.

Local Area LOS/CMS Evaluation



If the development is not consistent with the City's land use element, then it should not proceed further in the development review process until it is consistent. This could involve revising the development proposal or seeking and obtaining a change in the land use plan during the City's annual update process.

If the regional model data for the transportation analysis zone (TAZ) includes appropriate land uses and sufficient trip generation that would adequately account for the proposed development project, then the project would have been included in the annual Planning LOS/CMS review test.

The travel demand model would be used to estimate project travel patterns for the development review evaluation. Any LOS/CMS route segment or aggregate arterial segment impacted by at least 15 percent of the project's net traffic generation would be reviewed. This LOS/CMS review would assume only transportation improvements expected to be constructed/implemented within six years. It also would include traffic from all known developments that had previously been approved or at least had passed the LOS/CMS test. If all of the route segments impacted by at least 15 percent of the development's traffic meet the travel time standards within the six year horizon, then the project would meet the broad LOS/CMS criteria. The project would then proceed to the more detailed evaluation of intersections in the vicinity of the development. If the route segments or aggregate segments impacted by 15 percent of the development's traffic do not meet the travel time standards, then the City would likely need to deny the project unless improvement projects or strategies are defined to meet the standard within six years.

If the regional model assumptions for growth do not adequately cover the project, but the project is consistent with the adopted land use element, then the City should undertake a special review of the planning LOS/CMS evaluation. The City could determine that adequate capacity would be available without a model run if the corridors that would be primarily affected are well within the adopted planning LOS standard. If this determination cannot be made based on available information, the City would conduct a special model run to test the project against the planning level standard. If the corridor travel times were still within standards, then the City would need to adjust the model data to reflect the proposed development in all future LOS/CMS evaluations. If the project traffic results in the broader planning LOS/CMS standards being exceeded, then the development would need to be denied until strategies are in place to meet the standard within six years.

Local Vicinity LOS/CMS Evaluation

If the development project is consistent with the Comprehensive Plan and meets the Planning LOS/CMS standard, then a second tier evaluation would be conducted. This second tier evaluation would focus on project impacts at intersections in the vicinity of the development that will provide the primary access and circulation for traffic to/from the project. These impacts would be evaluated by the applicant by submitting a traffic study. The scope of the traffic study would cover the intersections that meet specific guidelines. The following highlights how this tier could be set up and applied.

Define Facilities to Apply Standards. As a minimum, it is recommended that all arterials included in the Planning LOS/CMS program be included in the development review LOS/CMS evaluation. This would ensure that specific development level impacts would be

evaluated within these corridors. Other arterials also may be added to the evaluation to provide coverage in areas that have only a limited number of arterials subject to the Planning LOS/CMS evaluation. As an option, the City could include all collector, minor, and principal arterials as the default; the list would be adjusted based on previous analyses that showed little or no concern for specific intersections exceeding the LOS/CMS standard. This could be done during scoping meetings with City staff or through administrative procedures.

Define Traffic Impact Area or Traffic Impact Threshold. Since the areawide Planning LOS/CMS standard will cover most principal and some minor arterials, the development review standard should focus on the effects of traffic impacting facilities in its immediate vicinity. This focused evaluation could be obtained by requiring an analysis of all arterial intersections within a ½ or 1 mile radius of the site. Another way to set the area would be via actual travel distance along the arterials serving the site. Intersections of site access driveways with local roads or arterials also would be included.

The distance approach provides a consistent approach for defining study intersections. However, small developments would be required to look at the same number of locations that would be required for a larger development in the same area. In order to provide a more reasonable approach for smaller developments, a minimum traffic impact level should be set. For example, a minimum 30 project trips during the PM peak hour should impact an intersection within the distance parameter before the intersection needs to be considered. The specific threshold should be established based on the potential for actually resulting in an adverse impact at an intersection. A threshold of approximately 30 trips during the PM peak hour is proposed. If approximately 50 percent of these trips impact “critical movements” at a signalized intersection, then the volume-to-capacity ratio would change by up to 0.01, which could be used as a reasonable technical threshold.

If a minimum trip threshold is used, then the City will need to include requirements that minimizes the ability of a developer to split a project up to avoid analyzing additional off-site intersections. This could be done by requiring any future project phases on the same site that are proposed within some time horizon (e.g. 1 or 2 years) to consider the impact of the total project instead of just the current phase.

Define LOS Standard. In order to support and direct growth to areas where the City wants development, a multi-level LOS standard for intersections should be used. In areas where growth is desired, the City could consider LOS E acceptable; LOS D would be the standard in most other areas. LOS C could be set for locations where growth would be discouraged.

The LOS standard would primarily be applied to signalized intersections, using the 1997 HCM delay-based methodology or any future updates. The LOS for the total intersection would be used. This process directly relates to travel time measures used in the Planning LOS/CMS standard. LOS at unsignalized intersections would also be subject to the standards; however, flexibility in mitigation should be maintained since it is not always desirable or practical to improve an unsignalized location (see next subsection). The LOS at unsignalized intersection would be looked at for each movement, instead of the total intersection.

Another option would be to use the above standards, but to allow traffic from a project to impact some LOS F intersections. This could occur if Transportation Demand Management (TDM) or Transportation System Management (TSM) strategies are undertaken as mitigation. Specific intersections could be called out as being allowed to operate at LOS F, as long as the overall Planning LOS/CMS corridor travel times still meet the adopted standards. Another option would be to allow a specific number of intersections within some areas to operate at LOS F. Again, the Planning LOS/CMS standard would first need to be met as part of the initial concurrency evaluation for each development project.

Define Improvement/Mitigation Strategies. Options for project applicants to make improvements to the transportation system to meet the intersection LOS/CMS standard must be identified. Several options should be included, such as:

- Reducing impacts to below thresholds by changing the project or reducing its traffic generation through TDM programs. Specific guidelines would be established through administrative procedures.
- Constructing (alone or with others) traffic operations improvements to provide adequate capacity to meet the standard, or at least offset the incremental impact of the development project. The improvements should be consistent with the City's Capital Facilities Plan and Comprehensive Plan policies.
- Contributing to improvements that the City will undertake that will result in compliance with the standards. This could be through impact fees, a Local Improvement District, Transportation Benefit District, or payment of a pro-rata share of an improvement project. There could be a requirement that financial commitments have to be in place to have the improvement constructed within six years of the development impacts.
- If LOS F conditions are allowed in some areas, then the applicant could contribute to or implement TSM-or TDM improvements along a corridor or within a subarea to improve traffic operations for the major travel patterns that the City has identified as priorities.
- At unsignalized intersections, it is not always appropriate or desirable to construct improvements that primarily serve side streets classified as local roads or lower level arterials. For example, a traffic signal may not be warranted even if the side street operates at LOS E or LOS F. These locations should be looked at on a case-by-case basis to identify the most appropriate way to provide capacity and safety, if necessary.

Application for the Three Growth Scenarios

The primary issue in applying the project level LOS standard to the three growth scenarios is the setting of acceptable standards. As with the corridor travel times, lower LOS standards (LOS D, E or F) could be applied within the designated growth areas for the *Focused Growth: City Center and Centers and Corridors* alternatives. A higher standard (e.g. LOS C) could be applied to areas where growth would not be desired under that plan alternative. Under the *Current Patterns* alternative, differential standards would not likely be applied.

Another possible difference between alternatives would be to allow LOS F intersections within some of the designated growth areas. Under the *Focused Growth: City Center and Focused Growth: Centers and Corridors* alternatives, LOS F conditions could be allowed at some intersections in the core development areas. This would support development within these areas where alternative transportation modes provide options to meet travel demands.

Implementation

Prior to being a valid tool for evaluating development projects versus a LOS/CMS standard several items must be addressed. First, detailed administrative procedures must be prepared. Secondly, the travel model process must be developed to evaluate a six-year horizon, instead of 2020 forecasts.

The administrative procedures will need to define the following:

- The size and type of developments to be evaluated.
- Any exemptions to be allowed (e.g. low income housing, schools, public buildings).
- The traffic thresholds for defining intersections to be evaluated and a scoping process.
- The specific LOS criteria for all potential intersections including potential criteria to allow LOS F at some intersections.
- Process for scoping and reviewing the required traffic studies. This would include defining the intersections to be analyzed.
- Strategies and City priorities for mitigating project impacts. This could include payment of fees or construction of improvements to meet the LOS standard. The City should determine whether the mitigation will be imposed via its SEPA rules or GMA requirements.
- A process for administrative, or other, appeal of the City's decision.

The modeling process needs to be refined to reflect a six-year horizon for evaluating development projects. This would include:

- Developing an ongoing process to keep the SRTC base model calibration up to date to reflect all new developments and transportation improvements.
- Implementing a process to calibrate the model to existing travel times along arterial segments.
- Incorporating traffic from all developments that have been approved and/or have received their LOS/CMS approvals. This would include developments in the City and all other locations covered by the regional model.
- Incorporating a process to add new traffic data from traffic studies into the model to maintain the validity of the model.

These are some of the key issues that need to be developed and/or refined prior to implementing the development review LOS/CMS process.

APPENDIX A

Route Segment Listing

Appendix A

Segment #	Road Segment
1001	Nine Mile (SR-291) from City Limit to Francis
1002	Assembly/Northwest from Francis to Buckeye
1003	Northwest from Buckeye to Monroe
1004	Indian Trail from City Limit to Francis
1006	Country Homes from Francis to Division
1008	Maple/Ash from Francis to Buckeye
1011	Maple/Ash from Buckeye to I-90
1012	Monroe from Wall to Francis
1013	Monroe from Francis to Buckeye
1014	Monroe from Buckeye to Main
1015	Wall from Country Homes to Francis
1016	Wall/Post from Francis to Buckeye
1017	Post/Lincoln from Buckeye to Spokane Falls
1018	Division from Mill to Francis
1019	Division from Francis to Buckeye
1020	Division from Buckeye to 3rd
1021	Washington from Buckeye to Spokane Falls
1023	Nevada from SR-2 to Francis
1024	Nevada from Francis to North Foothill
1025	Hamilton from North Foothill to Trent
1028	Market from SR-206 to Francis
1029	Market/Haven from Francis to Euclid
1031	Greene from Euclid to the Spokane River
1032	Greene/Freya from the Spokane River to Thor Pl
1033	Geiger from Sunset to I-90
1034	Maple/Ash from I-90 to 29th
1036	Grand from I-90 to 29th
1037	Arthur/Perry/Southeast from 2nd to 29th
1038	Grand/High/Hatch from 29th to 57th
1039	Southeast/Regal from 29th to 57th
1040	Freya from 29th to 57th
1041	Ray from 29th to Freya
1042	Thor/Ray from Freya to 29th
1043	Freya from Thor Pl to 29th
1044	SR-2 from Division to SR-206
1046	Hwy 2 from Sunset to I-90
1091	Crestline from Francis to Euclid
1092	Crestline from Euclid to Illinois
1093	Alberta from Francis to Northwest
2001	Francis from Assembly to Division
2002	Francis from Division to Gluch Rd
2003	Wellesley from Assembly to Division
2004	Wellesley from Division to Freya
2005	Maxwell from Ash to Division
2006	Mission from Browne to Trent
2007	Trent from Browne to Argone
2009	Sprague from Browne to Fancher
2010	2nd from Browne to Arthur
2011	3rd from Browne to Arthur
2012	29th from High to Grand
2013	29th from Grand to Havana
2014	57th from Hatch to Palouse Hwy
2015	Hawthorne from Division to Market
2016	Hastings from Division to Market
2017	New E-W Arterial from Division to UGA Boundary
2018	Assembly/Grandview/Lindeke from Thorpe to Sunset
2019	Sunset from Maple to UGA Boundary
2020	Buckeye/North Foothill/Euclid from Division to UGA Boundary
2021	Buckeye from Northwest to Division