Whipple Consulting Engineers, Inc.

Updated
November 2, 2022
W.O. No. 2021-3017

Parcel No.	
25261.2606	25261.2607
25261.2710	25261.2901
25261.2812	25261.3005
25261.3004	25261.3003
25261.3002	25261.3001
25261.3101	25261.3305
25261.3301	25261.3204
25261.3203	

City of Spokane
Department of Engineering Services
801 W. Spokane Falls Boulevard
Spokane, WA 99201

Attn: Inga Note, P.E.,

Re: **Grandview Addition**
3201 W 19th Avenue
Expanded Trip Generation & Distribution Letter

Dear Inga,

This TGDL has been expanded to include a LOS analysis of city streets per City comment

As noted, the purpose of this document is to provide an Expanded Trip Generation and Distribution Letter (TGDL) for the proposed Grandview Addition located at 3201 W 19th Avenue as shown on Figure 2, Preliminary Site Plan. This letter will follow the standards for doing Trip Generation and Distribution Letters as required by the City of Spokane and the Institute of Transportation Engineers (ITE).

PROJECT DESCRIPTION

The project proposes to develop 22.35 ac +/- made up of 15 existing parcels into a 111-lot Single-Family Residential subdivision. The project site is currently undeveloped and covered in field grass, basalt rock, trees, and weeds. The expected build out years are 2023 through 2024. Please see Figure 2, Preliminary Site Plan for more information. Specifically, access and frontage improvements are as follows:

- The project will be required to reconstruction of Grandview to the 16th/17th intersection, this is a remnant from a previous final-plat, Westridge PUD, 1998 and will occupy what is shown on maps as H Street.
- The project has very little existing street frontage to improve so with the exception of a small strip along Grandview at what was the H Street connection, there essentially is none.
- The project will take access via an extension of F Street from 21st Avenue, an emergency access along the G Street alignment half street right of way from 17th Street and from Grandview Avenue via a new H Street.
- Internal streets as proposed are proposed as Grandview Avenue, 18th, 19th and 20th Avenues as well as G Street and Mya Avenue.

VICINITY / SITE PLAN

The site is currently listed on the comprehensive plan and zoned as Residential Single Family (RSF). The subject property is located in a portion of NE ¼, Section 26, T25N., R42E., W.M. The parcel numbers for the project are 25261.2606, 25261.2607, 25261.2710, 25261.2901, 25261.2812, 25261.3005, 25261.3004, 25261.3003, 25261.3002, 25261.3001, 25261.3101, 25261.3305, 25261.3301, 25261.3204, and 25261.3203. The surrounding area are residential and undeveloped land uses.

TRIP GENERATION AND DISTRIBUTION

Trip Types

The proposed use is a residential development; Institute of Transportation Engineers (ITE) has developed data regarding various trip types that all developments experience. These are found in several places; however, for this analysis the *Trip Generation Manual 11th Edition* as well as the *Trip Generation Handbook* were used to develop the criteria for this analysis.

Generally, all existing and proposed developments will be made up of one or more of the following four trip types: new (destination) trips, pass-by trips, diverted trips, and shared (internal trips). In order to better understand the trip types available for land access a description of each specific trip type follows.

New (Destination) Trips - These types of trips occur only to access a specific land use such as a new retail development or a new residential subdivision. These types of trips will travel to and from the new site and a single other destination such as home or work. This is the only trip type that will result in a net increase in the total amount of traffic within the study area. The reason primarily is that these trips represent planned trips to a specific destination that never took trips to that part of the city prior to the development being constructed and occupied. This project will develop new trips.

Pass-by Trips - These trips represent vehicles which currently use adjacent roadways providing primary access to new land uses or projects and are trips of convenience. These trips, however, have an ultimate destination other than the project in question. They should be viewed as customers who stop in on their way home from work. An example would be on payday, where an individual generally drives by their bank every day without stopping, except on payday. On that day, this driver would drive into the bank, perform the prerequisite banking and then continue on home. In this example, the trip started from work with a destination of home, however on the way, the driver stopped at the grocery store/latte stand and/or bank directly adjacent to their path. Pass-by trips are most always associated with commercial/retail types of development along major roadways. Therefore, for this project pass-by trips will not be considered.

Diverted (Linked) Trips - These trips occur when a vehicle takes a different route than normal to access a specific facility. Diverted trips are similar to pass-by trips, but diverted trips occur

from roadways which do not provide direct access to the site. Instead, one or more streets must be utilized to get to and from the site. For this project, no diverted trips are anticipated.

Shared Trips - These are trips which occur on the site where a vehicle/consumer will stop at more than one place on the site. For example, someone destined for a certain shop at a commercial site may stop at a bank just before or after they visit the shop that they went to the site to visit. This trip type reduces the number of new trips generated on the public road system and is most commonly used for commercial developments. Since the project has only one land use and no cross-access driveways with other land uses, no shared trips were considered.

Trip Generation Characteristics for the Proposed Project

As noted earlier, trip generation rates for the AM & PM peak hours are determined by the use of the *Trip Generation Manual, 11th Edition* published by the Institute of Transportation Engineers (ITE). The purpose of the *Trip Generation Manual* is to compile and quantify empirical data into trip generation rates for specific land uses within the US, UK, and Canada.

Proposed Land Uses

For the proposed 111 single family residential units, ITE Land Use Code LUC#210, Single-Family Detached Housing was used to establish the number of potential trips generated by the proposed land use. Based upon Section 4.4 in ITE - Trip Generation Handbook, the fitted curve equation was used to calculate new project trips. The fitted curve equation and the anticipated number of AM & PM peak hour trips for the proposed land use are shown on Table 1.

Table 1-Trip Generation Rates for LUC # 210 – Single-Family Detached Housing

Dwelling Units	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. @ Fitted Curve Equation / Unit	Directional Distribution		Vol. @ Fitted Curve Equation / Unit	Directional Distribution	
		26% In	74% Out		63% In	37% Out
111	82	21	61	110	69	41

Average Daily Trip Ends (ADT)			Fitted Curve Equation
Units	Fitted Curve Equation	ADT	AM – Ln(T) = 0.91 Ln(x) + 0.12 PM - Ln(T) = 0.94 Ln(x) + 0.27 ADT – Ln(T) = 0.92 Ln(x) + 2.68 T = Trips/units, x = Dwelling Units
111		1,111	

As shown on Table 1, the proposed development is anticipated to generate a total of 82 trips in the AM peak hour with 21 trips entering the site and 61 trips exiting the site. In the PM peak hour, the proposed development is anticipated to generate a total of 110 trips, with 69 trips entering the site and 41 trips exiting the site. The proposed development is anticipated to generate a total of 1,111 average daily trip ends to/from the site.

TRIP DISTRIBUTION

As shown on the site plan, the site will be accessed via 17th Avenue, Grandview Avenue, and 21st Avenue. (Please see Figure 2 Site Plan) It is anticipated that the residents of the site will generally use the following roadways:

16th Avenue is generally an east/west, two-way, 2-lane urban collector that extends northeast and east from 17th Avenue through Milton Street before terminating at Canyon Woods Lane. 16th Avenue serves residential and rural land uses. The speed limit on 16th Avenue is 25 MPH.

17th Avenue is generally an east/west, two-way, 2-lane local access road that extends east from Grandview Avenue through 16th Avenue, F Street, D Street, and Grandview Avenue before terminating. 17th Avenue serves primarily residential land uses. The speed limit on 17th Avenue is 25 MPH.

21st Avenue is generally an east/west, two-way, 2-lane local access road that extends west from 22nd Avenue through D Street, Scenic Boulevard, and F Street before terminating. 21st Avenue is scheduled to be extended to Grandview at the H Street Avenue as part of the completion of the Westridge alignment PUD phase 1. 21st Avenue serves residential land uses. The speed limit on 21st Avenue is 25 MPH.

Grandview Avenue is generally an east/west, two-way, 2-lane urban collector that extends east from Garden Springs Road to 17th Avenue. Grandview Avenue serves residential land uses. The speed limit on Grandview Avenue is 25 MPH.

Milton Street is generally a north/south, two-way, 2-lane urban collector that extends south from 14th Avenue through 16th Avenue before terminating. Milton Street serves residential land use. The speed limit on Grandview Avenue is 25 MPH.

14th Avenue is generally an east/west, two-way, 2-lane urban collector/local access road that stars next to I-90 southeast through South Loop Avenue, Milton Street, and Lindeke Street before terminating at Cochran Street. 14th Avenue serves residential and rural land uses. The speed limit on 14th Avenue is 25 MPH.

Lindeke Street is generally a north/south, two-way, 2-&4-lane minor arterial that extends south from Sunset Boulevard through 9th Avenue, passing over I-90, through Lindeke Court, 14th Avenue, and 15th Avenue before terminating at 16th Avenue. Lindeke Street serves residential, institutional, and lodging land uses. The speed limit on Lindeke Street is 25 MPH.

Garden Springs Road is generally an east/west, two-way, 2-lane urban minor arterial and local access road. That extends south from the end of Rustle Road over I-90 and through Grandview Avenue and Assembly Road before turning north at Abbott Road, and then goes underneath I-90, as a local access road, before transitioning into Lawton Road. Garden Springs Road serves low-density residential and institutional land uses. The posted speed limit on Garden Springs Road in the project area is 25 MPH.

Rustle Street is generally a north/south, two-way, 2-lane urban minor arterial that extends south from Sunset Highway and then transitions into Garden Springs Road at I-90 Interchange. Rustle Street serves commercial and lodging land uses. The posted speed limit on Rustle Street in the project area is 25 MPH.

Sunset Highway/Boulevard is generally an east/west, two-way, 2-,3-, &4-lane urban major arterial that extends east from Highway 2 interchange through Lewis Street, Geiger Boulevard, Rustle Street, Lindeke Street, Inland Empire Way, and 4th Avenue before transitioning into 2nd and 3rd Avenues. Sunset Highway/Boulevard serves residential, commercial, and industrial land uses. The posted speed limit on Sunset Highway/Boulevard in the project area is 40 MPH.

Geiger Boulevard is generally a northeast/southwest, two-way, 2-lane minor arterial. Geiger Boulevard extends southwest from Sunset Highway, passing under US Route 2, through Grove Road/Flightline Boulevard, Electric Road and Thomas Mallen Road, Geiger Boulevard then curves west before terminating at Hayford Road. Geiger Boulevard primarily serves industrial uses. The posted speed limit on Geiger Boulevard in the project area is 45 MPH.

Abbott Road/Lawton Road is generally a north/south, two-way, 2-lane local access road that extends north in the project area from Thorpe Road through Winsor Road before going underneath Interstate 90 and curving west, becoming Lawton Road, through Garden Spring Road and Ball Road before terminating at Geiger Boulevard. Abbott Road generally serves light industrial and low-density residential land uses in the project area. The posted speed limit on Abbott Road in the project area is 25 MPH.

Thorpe Road is generally an east/west, two-way, 2-lane urban collector and urban minor arterial and urban minor arterial. Thorpe Road extends east from Westbow Boulevard as an urban collector arterial to Grove Road where it then continues east as an urban minor arterial through Abbott Road, Assembly Road, Trainor Road and Highway 195 before becoming 23rd Avenue. Thorpe Road primarily serves light industrial and low-density residential land uses in the project area. The posted speed limit on Thorpe Road in the project area is 30 MPH.

Inland Empire Way is generally a north/south, two-way, 2-lane urban collector that extends south from Sunset Boulevard through 16th Avenue, 23rd Avenue, and Oak Street before terminating with a Cul-de-sac. Inland Empire Way primarily serves residential and commercial land uses in the project area. The posted speed limit on Inland Empire Way in the project area is 30 MPH.

Interstate 90 (I-90) is generally an east/west, two-way, 4-lane interstate freeway. I-90 is a transcontinental freeway, extending from Seattle, Washington to Boston, Massachusetts. The posted speed limit on I-90 within the study area is 60 mph.

State Route 195 is generally a north/south, two-way, 4-lane highway. State Route 195 extends south from Interstate 90 at Exit 279 and goes through 16th Avenue, Thorpe Road and the Cities of Spangle, Freedom, Plaza, Rosalia, Thornton, Cashup, Steptoe, Colfax, Pullman, Johnson, Colton, and Uniontown before merging with State Route 95 in Idaho. The posted speed limit on State Route 195 within the study area is 55mph.

Trip distribution for this analysis has been extended beyond the typical range for this project similar to the extend trip generation of previous projects within the area. An expanded analysis is being provided to review additional intersections of concern and to answer questions about trip

distribution from the WSDOT as it relates to SR 195 and I-90. Those distributions have been approved by the agencies in the past. Hence, it was originally anticipated that the distribution originally proposed would have been accepted as it varied little from previous distributions. Based on a request from the Agencies, new traffic volumes were collected, see traffic count section and the appendix, there was additional follow up discussion related to the results of the counts and while this distribution does not match existing traffic patterns it keeps it as a base and considers the future connections of 21st Avenue, the signal installation at Sunset Boulevard & Rustle Street. and the previously conditioned turn restriction at the intersection of 16th Avenue & SR 195. All of these anticipated improvements will continue the objective of reducing the use of SR 195/I-90 by downtown commuting workers.

Considering many factors such as the surrounding transportation facilities, typical commuting patterns, existing development in the area, conditioned projects and the ADT of surrounding roadways the traffic distribution for the proposed development is anticipated as follows (Please see Figures 3,4,5, &6 AM&PM Trip Distribution Percentages for the graphical representation.):

Entering

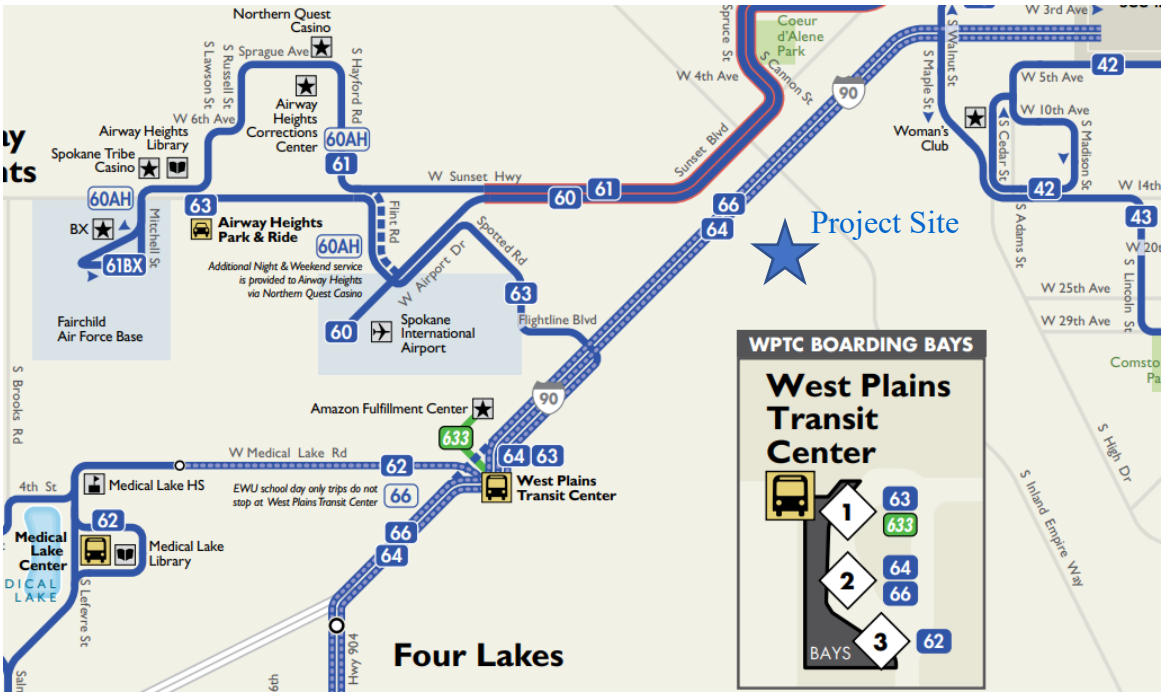
20% of trips are anticipated to come from the northwest via Sunset Boulevard, 10% of trips are anticipated to come from the west via I-90, 5% of trips are anticipated to come from the south via Assembly Road, 5% of trips are anticipated to come from the south via SR 195, 5% of trips are anticipated to come from the South Hill area by way of Inland Empire Way, 45% of trips are anticipated to come from the east via I-90, and 10% of the trips are anticipated to come from the east via Sunset Boulevard. Please see Figure 3

Exiting

20% of trips are anticipated to go to the northwest via Sunset Boulevard, 5% of trips are anticipated to go to the west via Geiger Boulevard, 5% of trips are anticipated to go to the west via Lawton Road, 5% of trips are anticipated to go to the south via Assembly Road, 5% of trips are anticipated to go to the south via SR 195, 5% of trips are anticipated to go to the South Hill area by way of Inland Empire Way, 5% of trips are anticipated to go to the east via SR 195 & I-90, and 50% of trips are anticipated to go to the east via Sunset Boulevard. Please See Figure 4

Existing Transit System

The existing bus routes nearest the project site are Routes 60&61. The nearest bus stop from the project site to the bus routes is 0.60 miles at Sunset Boulevard & Rustle Street. The bus stops can be accessed via Sunset Boulevard and Rustle Street. Please see the attached route map. It should be noted at there is no park and ride facility at that location and there are few if any sidewalk until north of I-90 where they start at Rustle and the WB off Ramp from I-90 intersection. Unless being dropped off, it is highly unlikely that pedestrians or bicyclists will use this route to take the bus downtown or other areas.



Source: Spokane Transit Authority

Existing Pedestrian System

There are sidewalks along 17th Avenue from 16th Avenue to C Street, D Street from 17th Avenue to 21st Street, 21st Avenue from D Street to the west end, Rustle Street from I-90 WB Off Ramp to Sunset Boulevard, and Sunset Boulevard from Rustle Street to Assembly Road. There are no sidewalks along Garden Springs Road, Grandview Avenue, and 16th Avenue within the study area. Please see the following pedestrian sidewalk map.

Source: Google Satellite Map

Existing Bike System

16th Avenue, Grandview Avenue, Garden Springs Road, and Rustle Street are assigned as shared roadways. There are bike lanes along Sunset Boulevard from Royal Street to Government Way within the study area. Please see the City of Spokane Bike Plans map.

Source: City of Spokane Bike Plans

Impacted Intersections ≥ 20 PM Peak Hour Trips

The trip distribution as a result of the proposed project has identified the following affected intersections. This identification is in consensus with previous projects as an aid to the traffic engineer.

- 16th Avenue/17th Avenue
- 14th Avenue/Lindeke Street
- Sunset Boulevard/Lindeke Street
- Grandview Avenue/Garden Springs Road
- I-90 WB Off Ramp/Garden Springs Road
- Sunset Boulevard/Rustle Road

ADDITIONAL ANALYSIS

LEVEL OF SERVICE (LOS) ANALYSIS

This expanded analysis includes two (2) intersections within the study area as requested by the City of Spokane. Four scenarios were examined for the LOS analysis.

- The first scenario (#1) is the existing traffic volumes as shown in Figures 5 & 6, and LOS is shown in Table 3.
- The second scenario (#2) assumes that the existing traffic volumes experience an increase above the existing volumes at the established background rate as shown on Figures 7 & 8, and LOS is shown in Table 5.
- The third scenario (#3) assumes that the development has moved forward and analyzes the scoped intersections with the background growth rate and the project trips as shown on Figures 9 & 10, and LOS is shown in Table 7.
- The fourth scenario (#4) assumes the same volumes as the third scenario, however the stop control for the intersections is changed from all-way-stop-control (AWSC) to two-way-stop-control (TWSC). This analysis is only the beginning of a process to change stop control as it only reports the LOS and should not be solely relied upon for all decision criteria such as changed sight distances, etc…

These scenarios will allow a determination to be made as to what the future conditions may be both with/without the background growth and with/without the project trips.

Methodology

For the level of service analysis, the HCM 6th addition was used. Please see the appendix for a more detail description of level of service both signalized and unsignalized

Traffic Volumes and Peak Hours of Operation

Traffic counts were collected in June 2022 under the direction of Whipple Consulting Engineers (WCE), at the following intersections:

- Grandview Avenue/16th Avenue & 17th Avenue
- 13th Avenue & Lindeke Street

The AM & PM peak hours from these counts are shown in Figures 5 & 6. The raw data for these counts is located in the technical appendix.

Scenario #1 –2022 Existing

The existing Levels of Service at the scoped intersection were calculated using the methods from the *6th Edition Highway Capacity Manual* as implemented in Synchro*, version 11 - Build 122*. The existing Levels of Service for the intersection within the study area are summarized in the following table. The existing traffic volumes used for this report are shown in Figure 7.

Table 2 – 2022 Existing Intersection Levels of Service (Figure 7)

INTERSECTION (S)ignalized (U)nsignalized		AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Grandview Avenue/16th Ave. & 17th Ave.	U	7.2	A	7.7	A
13th & Lindeke Street	U	8.2	A	8.4	A

Intersection Level of Service - Deficiency Evaluation

As shown in Table 2, the intersection is currently operating at an acceptable level of service.

Background Traffic Growth

The background growth rate was determined to be 1.00% per year. Based on a two-year build out, compounded annually, the total increase in traffic rate for the year 2027 is anticipated to be 1.051.

Background Projects

In addition to the natural increase in background growth, background projects that have already been approved or have made application and have been vested before this project have been included. The summary of background project traffic volumes used for this report are shown on Table 3 and the volumes included in a worksheet within the appendix.

Table 3 – Summary of the Background Project Trip Generation *

Background Projects	Land Use (ITE LUC)	Unit	AM Peak Hour Trips			PM Peak Hour Trips		
			Vol. / LUC	Directional Distribution		Vol. / LUC	Directional Distribution	
				In	Out		In	Out
Eagle Ridge 13th Add	(210)	104	77	19	58	103	65	38
The Summit	(210)	99	74	19	55	99	62	37
Tangle Ridge	(210)	45	34	8	26	45	28	17
Wheatland Estates	(210)	200	148	37	111	198	125	73
Latah Glen	(240)	157	36	10	26	66	42	24
Marshall Creek	(210)	425	307	77	230	407	256	151
The Greens at Meadowlane	(210)	36	27	7	20	36	23	13
Crystal Ridge	(210)	56	45	11	34	56	35	21
Canyon Bluffs PUD	(210) & (220)	64 & 432	207	51	156	273	172	101
Total			955	239	716	1283	808	475

Scenario #2 – Year 2027 Without Project with Background Traffic Growth and Projects

This scenario assumes that the existing traffic volumes experience an increase above the existing volumes at the established background rate. The traffic volumes for this condition include the existing traffic, as shown in Figure 7, multiplied by the background growth rate for year 2027(1.051). Please see Figure 8 for the traffic volumes used for this scenario. A summary of the Level of Service results is shown in Table 4. This scenario creates a future year baseline that allows for a direct comparison of the with project scenario.

Table 4 – Year 2027 Level of Service, Without Project w/ Background (Figure 8)

INTERSECTION (S)ignalized (U)nsignalized		AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Grandview Avenue/16th Ave. & 17th Ave.	U	7.3	A	7.7	A
13th & Lindeke Street	U	9.5	A	9.8	A

Intersection Level of Service - Deficiency Evaluation

As shown in Table 4, the intersection is anticipated to operate at an acceptable level of service.

Scenario #3 – Year 2027 with Project, with Background Traffic Growth & Projects

This scenario assumes that the project has moved forward and is added to the previously established future baseline of Scenario #2. The traffic volumes for this condition include the traffic volumes shown on Figure 8 and adds the project trips as shown on Figures 5 & 6. Please see Figure 9 for the traffic volumes used for this scenario. A summary of the Level of Service results is shown in Table 5.

Table 5 – Year 2027 LOS, with Project, w/ Background Traffic & Projects (Fig. 9&10) *

INTERSECTION (S)ignalized (U)nsignalized		AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Grandview Avenue/16th Ave. & 17th Ave.*	U	7.6	A	7.9	A
13th & Lindeke Street	U	9.5	A	10.0	A

***New 4-way configuration with all way stop control**

Intersection Level of Service - Deficiency Evaluation

As shown in Table 5, the intersection is anticipated to operate at acceptable levels of service

Scenario #4 – Year 2027 with Project with Background Traffic Growth & Projects

This scenario assumes the same volumes as scenario #3 with the project. The difference for this alternate scenario reviews control changes at the all-way-stop-control (AWSC) study intersections. For this scenario, the AWSC has been changed to a two way stop control (TWSC) with free north-south movements and stop control on the ease-west movements of each intersection. A summary of the Level of Service results is shown in the following table.

Table 6 – Year 2024 LOS, with the Background Projects and the Project (Fig. 9&10) *

INTERSECTION (S)ignalized (U)nsignalized		AM Peak Hour Delay (sec)	AM Peak Hour LOS	PM Peak Hour Delay (sec)	PM Peak Hour LOS
Grandview Avenue/16th Ave. & 17th Ave.	U	10.2	B	10.8	B
13th & Lindeke Street	U	12.3	B	12.4	B

Intersection Level of Service - Deficiency Evaluation

As shown in Table 6, the intersection is anticipated to operate at acceptable levels of service.

A reminder that this operational analysis is only a part of a larger analysis needed to change the stop control of an intersection and should not be solely relied upon in any decision, additional evaluation measures such as speed, sight distance, pedestrian, and bicycle interaction, etc… will need to be further evaluated should this change be the preferred method to reduce travel times.

The only reason that AWSC would be revised to TWSC is to better handle the flow of traffic from the project vicinity and the existing surrounding area and to decrease travel times from this area to the downtown core. While not analyzed, travel time would be the predominate reason to make this change. The reasoning is that with the future restrictions at 16th and SR-195 to restrict EB to NB left, that previous movement would need to turn left (WB to SB) and turn away from I-90 to then go to the previously constructed SB to NB J-Turn south of Thorpe Road and then make the U-Turn back to the north again and then pass the exit options at Thorpe and continue heading north to the SR-195 and I-90 interchanges Ramp Meters and the potential for stopped delay.

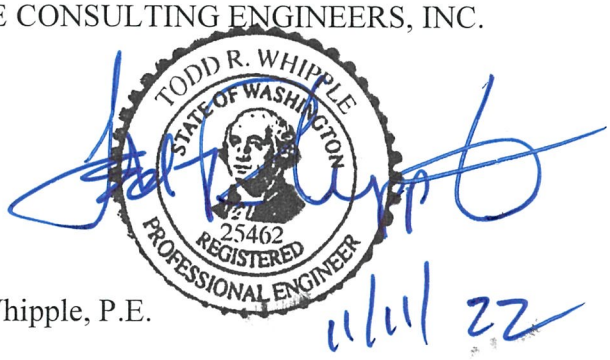
It is our opinion that the change to TWSC is a traffic revision that should be made to better promote downtown travel via Sunset Blvd, similarly to some of the redirections that have occurred by additional signing at Thorpe Road.

CONCLUSIONS AND RECOMMENDATIONS

It is anticipated that the proposed project will generate 82 AM peak hour trips and 110 PM peak hour trips. Based upon our professional judgement and the number of anticipated trips, we believe that there are no existing or expected deficiencies resulting from the project that have not been analyzed and mitigated by other projects in the corridor and that a Traffic Impact Analysis is not required in lieu of frontage improvements any improvement changes that may be required at the intersections that should be revised from AWSC to TWSC. Therefore, we recommend that the project complete frontage improvements on 17th Avenue and 21st Avenue and work with the City of Spokane on implementing the change from AWSC to TWSC at the noted intersections and be allowed to move forward without further traffic analysis.

Should you have any questions related to this document please do not hesitate to contact us at (509) 893-2617.

Sincerely,
WHIPPLE CONSULTING ENGINEERS, INC.



Todd R Whipple, P.E.

11/11/22

TRW/mtr

encl. Appendix

cc: Sponsor
File

APPENDIX

1. Vicinity Map
2. Preliminary Site Plan
3. Entering Trip Distribution
4. Exiting Trip Distribution
5. AM Trip Distribution
6. PM Trip Distribution
7. 2022 AM & PM Existing Volume & LOS
8. 2027 AM & PM Vol. w/o Project & LOS
9. 2027 AM & PM Vol. w/ Project & LOS
10. 2027 AM & PM Alt Vol w/ Project & LOS
11. Raw Counts
12. Background projects
13. 2022 AM & PM Existing LOS calcs.
14. 2027 AM & PM W-O Proj. LOS Calcs
15. 2027 AM & PM W- Proj. LOS Calcs
16. 2027 AM & PM Alt W- Proj. LOS Calcs