Methodology for Spokane Impact Fee Rate Calculation

Introduction

This memorandum describes the updated methodology for determining the transportation impact rate for the City of Spokane and the basis for the fees. Transportation impact fees are charges to new development to pay for transportation facility improvements needed to sustain new growth. More specifically, the Revised Code of Washington (RCW) Section 82.02.050 defines transportation impact fees should be spent on “transportation system improvements”, which can include physical or operational changes to the existing transportation system and new connections that benefit the function of the transportation system. The RCW Section 82.02.050 defines the intent impact fees as:

- 1(a): To ensure that adequate facilities are available to serve new growth and development;
- 1(b): To promote orderly growth and development by establishing standards by which counties, cities, and towns may require, by ordinance, that new growth and development pay a proportionate share of the cost of new facilities needed to serve new growth and development;
- 1(c): To ensure that impact fees are imposed through established procedures and criteria so that specific developments do not pay arbitrary fees or duplicative fees for the same impact.

The RCW Section 82.02.050 goes on to state that impact fees:

- 4(a): Shall only be imposed for system improvements that are reasonably related to the new development;
- 4(b): Shall not exceed a proportionate share of the costs of system improvements that are reasonably related to the new development;
- 4(c): Shall be used for system improvements that will reasonably benefit the new development.

The Growth Management Act (GMA) of Washington State defines transportation impact fees as a financing mechanism. State law defines limitations on impact fees collected such that they are related to the developments actual impacts and not used for unrelated purposes. Transportation impact fees collected must only be expended on system improvements that are:

- Identified in the comprehensive plan, capital improvement program, or other policy documents as needed for growth;
- Reasonably related to the impacts of the new development from which fees are collected.

Transportation impact fees can only be used to address future capacity improvements in defined areas and cannot be utilized to fund or address existing deficiencies. If an existing deficiency is noted and required to be addressed, it must be addressed solely and entirely from public sector funds and resources. New development cannot be responsible for fixing existing deficiencies.

Defining Existing Deficiencies

Existing deficiencies of city-owned arterial intersections were based on the City of Spokane level of service (LOS) standards outlined in Chapter 4 of the City's Comprehensive Plan which was updated in 2017. A City owned stop-controlled or signalized intersection that operates worse than a LOS E is considered deficient per the City standards. LOS F is also allowed in some parts of the City.

If a transportation facility is determined to be deficient, the agency is responsible for bringing the facility up to current standards. This may include restriping an intersection to create turn lanes, adding stop signs to make the intersection an all-way stop, installing a turn lane as warranted or needed, or adding a traffic signal to achieve acceptable levels of service.

Once the improvement is defined, it becomes the baseline for development of impact fees. The new capacity is defined and impacts to the new configuration are assessed.

Example: 29th Avenue & Freya Street

> 29th Avenue and Freya Street currently operates with a LOS E, and therefore meets acceptable LOS per City criteria (there is no existing deficiency).

Existing Capacity of Intersection and Roadway Facilities

The capacity of transportation facilities was determined for each intersection and segment of roadway identified in the CIP project list. The existing capacity of each facility was determined based on the following assumptions:

- All-way stop intersection
    - One-lane approach → 425 vehicles per hour (vph)
    - Two-lane approach → 525 vph
- Signalized intersection
    - Through lane → 600 vph
    - Shared through-right turn lane → 600 vph
    - Shared left-through-right turn lane (single approach lane) → 750 vph
    - Left turn lane (permitted-protected or permitted phasing) → 300 vph
    - Left turn lane (protected only phasing) → 150 vph
    - Right turn lane → 300 vph
- Roundabout
    - Single lane approach → 625 vph
    - Right turn slip lane → 300 vph
- Roadway segments
    - New 3-lane collector → 2,400 vph
    - Thorpe tunnels (limited width and height) → 850 vph (per VISSIM analysis by City staff)
    - Single lane of traffic (no turns) → 1,200 vph

Example: 29th Avenue & Freya Street

29th Avenue and Freya Street is an existing all-way stop intersection with four (4) single lane approaches. The existing capacity of this intersection is calculated at four (4) single lane approaches, each at 425 vph, resulting in a total capacity of 1,700 vph.

Existing Intersection and Roadway Capacity Utilized

The capacity of transportation facilities being utilized by the existing volumes, prior to any new development, was determined for each intersection using the Intersection Capacity Utilization (ICU) report from Synchro software. The ICU calculation determines the capacity utilized by comparing the volume-to-capacity of each intersection, using current traffic counts and the existing stop controls. The ICU percentage was then applied to the intersection capacity calculations to determine the existing capacity, in volume per hour, that is utilized.

Example: 29th Avenue & Freya Street

The Synchro ICU report indicates that the existing volumes passing through the intersection during the PM peak hour utilize 73% of the total intersection capacity. That is, the capacity utilized by the existing traffic volumes (prior to new development) is 1,241 vph.

Intersection and Roadway Improvements – Remaining Capacity for New Trips

The CIP defines the list of intersection and roadway projects the City anticipates are needed to facilitate the growth and operation of the City. Each intersection or roadway improvement includes a change in facility capacity, which is determined using the rates as previously described. The capacity of each intersection or roadway, with improvements, is calculated and the result is subtracted from the existing capacity utilized, which is defined as the 'change in capacity'.

Example: 29th Avenue & Freya Street

The proposed improvement is to add a left-turn lane to the eastbound approach and a southbound right turn lane at the intersection. The proposed capacity of this intersection is calculated at two (2) two-lane approaches, each at 525 vph, and two (2) single-lane approaches, east at 425 vph, resulting in a total proposed capacity of 1,900 vph.

The existing capacity utilized at this intersection is 1,241 vph. The 'remaining capacity for new trips' of the proposed improvement to the existing capacity utilized is 659 vph.

Developer Share – Intersection and Roadway Percent Eligible for Impact Fees

As defined by RCW 82.02.050, developments can only be made responsible for a proportionate share of transportation system improvements through the implementation of impact fees. The proportionate share of the intersection and roadway improvements is defined as the remaining capacity for new trips divided by the total capacity of the improved intersection. In using this method, the new development is being assessed on the unused and new capacity being added by infrastructure improvements and is not being assessed on the utilization of the existing volumes on the facilities.

<u>Example: 29th Avenue & Freya Street</u>

> The percent of intersection improvements eligible for impact fees is the change in capacity, previously calculated at 659 vph, divided by the total proposed capacity for the intersection, previously calculated at 1,900 vph. The result is the new development is responsible for 35% of the intersection improvements, and thereby the project costs.

Using this methodology, the project names, descriptions, capacity calculations, and percent eligible for impact fee calculations are provided in the Appendix.

<u>System Factor</u>

A system factor of 90% was applied to the eligible costs per RCW 82.02.050. This overall reduces the cost of eligible fees by 10% and can be attributed to rerouted regional and local traffic generated by each improvement and the application of local and/or regional funds being applied.

<u>Trip Ends</u>

Trip End data is sourced from the Spokane Regional Transportation Council (SRTC) Travel Demand Model by Transportation Analysis Zone (TAZ). We can estimate where new traffic and growth is expected to occur within the City by comparing the growth in trips between the 2019 base model and the 2045 forecast model. The trip end growth is assigned to the appropriate Transportation Impact Fee Service Area and used in the rate calculation discussed in the following section.

<u>Rate Formula</u>

The formula below is used to calculate the base PM Trip Fee:

$$PM\ Trip\ Fee = \frac{Eligible\ Project\ Costs * Developer\ Share * System\ Factor}{Trip\ Ends}$$

- *Eligible Project Costs*: Eligible cost of all projects in the service area less cost to correct existing deficiencies
- *Developer Share:* Shar of the project assigned to development based on available capacity.
- *System Factor:* Adjustment to ensure cost is not solely reliant on developers.
- *Trip Ends:* Growth in PM peak hour trips from 2019 to 2045 from the SRTC travel demand model.

APPENDIX: PROJECT LIST AND CAPACITY CALCULATIONS

Appendix - Impact Fee Project List

Project	Description	Existing Deficiency Mitigation	Existing Deficiency Mitigation Cost?	Existing Capacity	Existing Capacity Calculation	Existing Utilized Capacity %	Existing Capacity Utilized	Capacity Improvements	Improvement Capacity Amount	Improvement Capacity Calculation	Change calculation	% eligible	Eligible Impact Fee (change in capacity / new capacity)
5th Ave / Sherman St	Intersection - Install new traffic signal	Restripe EB approach to provide EBL, EBT/R. This gets LOS E with all-way stop. Stripe cattracks EB for through off-set.	Assume 10% of cost is striping, reduction of $75k, then rest towards impact fees.	All-way stop: 3 2-lane approaches @ 525 vph, 1 single lane approach @ 425 vph ==> 2000 vph.	2,000	57%	1,140	All way stop to signal	signal, keeping mitigated lanes: 3 lefts @ 300 vph + 3 thru/rights @ 600 vph + 1 single approach @ 750 vph ==> 3450	3,450	2,310	67%	2310 / 3450 --> 67%
Ash Street 2-way from Broadway to Dean	Convert Ash Street to a 2-way street to allow access to Maple Street Bridge SB.			1,200 vph in SB direction. Using 20% of existing capacity.	600			additional NB travel lane (remova of SB travel lane)	adds 600 vph in NB direction. Currently using less than 1 lane SB. Total capacity = 1,200 vph (bidirectional)	1,200	600	50%	600 / 1200 --> 50%
D Bicycle Improvements	stripe bike facilities on arterials, bike share parking crossing improvements											50%	Use 50% based on existing facilities build-out.
D Pedestrian Improvements	install pedestrian facilities on arterials											50%	Use 50% based on existing facilities build-out.
29th Ave / Freya St	Stripe EB left turn lane, keep WB single lane approach. Restripe SB with right turn lane, keep NB single lane approach. Keep 4-way stop.			All-way stop: 4 single lane approaches @ 425 vph ==> 1700 vph.	1,700	73%	1,241	Add EB left turn lane. Add SB right turn lane.	All-way stop: Two 2-lane approaches @ 525 vph and 2 one-lane approaches @ 425 vph ==> 1900 vph.	1,900	659	35%	659 / 1900 --> 35%
29th/ Regal	EBR slip lane, bike lanes N-S, new cabinet, signal pole			Signal: NB/SB lefts @ 300 vph each; NB/SB thru/right @ 750 vph each; EB/WB dual shared lanes @ 600 vph each (4 total) ==> 4,50	4,500	80%	3,600	Add EB RTL + bike facility	Adds 300 vph + transit & bike capacity (400 vph) ==> 5,200 vph	5,200	1,600	31%	1600 / 5200 --> 31%
37th / Ray, 37th/Freya	37th/Ray roundabout or realignment with signal. Includes modifications to Ferris High School driveways. Signalize 37th/Freya.			37th/ray: 4-2-lane approaches @ 525 vph ==> 2100 vph 37th/Freya: 3-2 lane approaches @ 525 vph, 1 single lane approach @ 425 vph ==> 2000 vph		37th/Ray = 53% 37th/Freya = 53%	37th/Ray = 1,113 37th/Freya = 1,060	Roundabout @ 37th/ray + signal @ 37th/freya	37th/ray: single lane RAB @ 625 vph*4 lanes --> 2,500 vph 37th/Freya: signal, 3 lefts @ 300 vph, 3 thru/rights @ 600 vph, 1 single approach @ 750 vph --> 345(		37th/Ray = 1,387 37th/Freya =		37th/ray: 1387 / 2500 --> 55% 37th/freya: 2390 / 3450 --> 69% Total: (1387+2390) / (2500+3450) --> 3777 / 5950 --> 63%
57th/Hatch	Intersection capacity improvements - needs further analysis			Consider as a 2-way stop: 1-1 lane approach (EB) @ 425 vph, 2-2 lane approaches (WB/NB) @ 525 vph ==> 1475 vph	1,475	57th/Hatch (east): 64% 57th/Hatch (west): 44% 57th/Hatch (south): 37%	944	Add traffic signal and turn lanes	Signal: 2 lefts (NE,WB) @ 300 vph, 2 thru lanes (EB/WB) @ 600 vph, 2 right (NB,EB) @ 300 vph --> 2400	2,400	1,456	61%	Improved driver expectations may add 20% more capacity. No change in # of lanes.
44th Ave from Crestline to Altamont	new collector road section			No roadway exists. Likely used by 40% background traffic and 60% new traffic.				Adds new collector - new EB/WB lane	2,400 vph	2,400	1,440	60%	1440 / 2400 --> 60%
44th/Regal	Widen northbound approach to 2 lanes			signal: 4 left-turn lanes @ 300 vph; EB/WB/NB shared thru/right @ 600 vph, 2 SB lanes @ 600 each --> 4,200 vph	4,200	86%	3,612	Add second EB thru lane	1 EB thru/right lane --> 600 vph; 4200 + 600 --> 4800	4,800	1,188	25%	1188 / 4800 --> 25%
Freya / Palouse Hwy	roundabout (or turn lanes)			All-way stop: 4 single lane approaches @ 425 vph ==> 1700 vph.	1,700	76%	1,292	Roundabout	single lane RAB @ 625 vph*4 lanes --> 2,500 vph	2,500	1,208	48%	1208 / 2500 --> 48%
S Bicycle Improvements	stripe bike facilities on arterials											50%	Use 50% based on existing facilities build-out.
S Pedestrian Improvements	install pedestrian facilities on arterials											50%	Use 50% based on existing facilities build-out.
Lindeke frontage road from 16th to Thorpe	2-3 lane frontage road, with bridge for trail at 16th			No roadway exists. Likely used by 40% background traffic and 60% new traffic.				Adds new collector - new NB/SB lane (3-lane collector	2,400 vph	2,400	1,400	60%	1440 / 2400 --> 60%
US 195/Meadowlane	intersection improvement with J-turns											100%	100%
Inland Empire Way two-way	provide 2 way roadway from Cheney-Spokane t downtowr			1 section of road does not exist. Otherwise, road does exist. Likley se a 50% use by background traffic				Adds new collector - new NB/SB lane (2-lane collector	2,400 vph			50%	1200 / 2400 --> 50%
BNSF Tunnel on Thorpe	widen existing tunnel or bore new pedestrian tunnel			850 vph	850			larger tunel	Future capacity of 2,400	2,400	1,550	65%	1550 / 2400 --> 65%
Fish Lake Trail Tunnel on Thorpe	replace with bridge to provide wider roadway			850 vph	850			larger tunel	Future capacity of 2,400	2,400	1,550	65%	1550 / 2400 --> 65%
Qualchan and Cheney-Spokane Path	pathway from Lincoln Blvd to Yokes											50%	Use 50% based on existing facilities build-out.
Cheney-Spokane restripe and bike path	Qualchan to Interchange											50%	Use 50% based on existing facilities build-out.
21st Avenue: Hazelwood to Spotted	segment - construct new 3-lane arterial			No roadway exists. Likely used by 40% background traffic and 60% new traffic.				Adds new collector - new EB/WB lane (3-lane collector)	2,400 vph	2,400	1,400	60%	1440 / 2400 --> 60%
12th Avenue: Deer Heights to Flint	segment - construct new 3-lane arterial			No roadway exists. Likely used by 40% background traffic and 60% new traffic.				Adds new collector - new EB/WB lane (3-lane collector)	2,400 vph	2,400	1,400	60%	1440 / 2400 --> 60%
12th-14th Avenue: Campus to Russell				No roadway exists. Likely used by 40% background traffic and 60% new traffic.				Adds new collector - new EB/WB lane (3-lane collector)	2,400 vph	2,400	1,400	60%	1440 / 2400 --> 60%
Sidewalk on Lindeke, improve 13th/Lindeke intersection	from 14th to the I-90 Bridge											50%	Use 50% based on existing facilities build-out.
Rustle Street Bridge Widening for Non-Motorized Users	add non-motorized											50%	Use 50% based on existing facilities build-out.
Sidewalk on Grandview	from Rustle to 17th											50%	Use 50% based on existing facilities build-out.
Sunset Highway/Assembly	new signal			2-way stop NB/SB. NB approach @ 525, SB app @ 425, EB/WB L @ 300 each, EB/WB thru @ 600 --> 3950	3,950	44%	1,738	Traffic signal	signal: NB/SBL @ 300 vph, NB/SB thru-right @ 600 vph, EB/WB L @ 300 vph, EB/WB 2 thru/right @ 600 vph --> 4,800	4,800	3,062	64%	3062 / 4800 --> 64%
Sunset/Government Way	signal upgrades to protected-permitted phasing			Signal: EB/WB L protected only @ 150 vph, EB/WB thru/right @ 600, NB/SB L permitted @ 150 vph, NB/SB thru/right @ 600, EB R @ 300 -> 5700	5,700	65%	3,705	permitted/protected phasing	Signal: EB/WB L protected only @ 300 vph, EB/WB thru/right @ 600, NB/SB L permitted @ 300 vph, NB/SB thru/right @ 600, EB R @ 300 -> 6300	6,300	2,595	41%	2595 / 6300 -->41%
W Bicycle Improvements	stripe bike facilities on arterials or US 2 Bike Path											50%	Use 50% based on existing facilities build-out.
W Pedestrian Improvements	install pedestrian facilities on arterials											50%	Use 50% based on existing facilities build-out.