

MEMORANDUM

Date: February 14, 2013
To: Steve Atkinson, City of Tacoma
From: Dan Grayuski and Will Lisska, Fehr & Peers
Subject: **Schuster Corridor Trail Project**

SE12-0265.00

INTRODUCTION/PURPOSE/OVERALL FINDINGS

The City of Tacoma Mobility Master Plan and Shoreline Public Access Alternatives Plan envision a waterfront shared-use trail through the Schuster Corridor, connecting the northern terminus of Pacific Avenue to Ruston Way near McCarver Street. This facility would provide an active transportation connection between Downtown and the historic Old Town neighborhood. While the exact alignment of the trail is yet to be determined, the Schuster Corridor Trail is intended to improve the link between the Thea Foss Walkway, the Tacoma Chinese Reconciliation Park, Downtown, and the Ruston Way promenade for bicyclists and pedestrians. As part of a second phase of the project, the City will be exploring options for trail alignment and developing a preferred design alternative for the Schuster Corridor. Other options include the extension of a water-side or over-water esplanade and improvements to the Bayside Trail that runs along the slope above Schuster Parkway. The proposed trail project and the surrounding context are shown on **Figure 1**.

Because points along Schuster Parkway have limited right-of-way – constrained by BNSF railroad tracks to the east and the natural vegetated slope to the west – one of the trail alignment options the City will be evaluating is a Schuster Parkway road diet, where at least one travel lane would be removed from the roadway to provide room for the proposed shared-use trail. This memorandum analyzes the feasibility of a “road diet” along Schuster Parkway in which a southbound travel lane between Old Town and Downtown is replaced with a shared-use trail.

FIGURE 1 – PROPOSED SCHUSTER PARKWAY TRAIL AND SURROUNDINGS



The road diet evaluation is predicated on the removal of a southbound travel lane of Schuster Parkway. However, we believe that a removal of a northbound travel lane would yield similar results as are discussed herein. The southbound lane removal was chosen for evaluation for the following reasons:

- Simpler logistics of roadway/trail tie-ins and transition points compared to the northbound travel lanes.
- Better trail connectivity to/from Downtown compared to the northbound lane.
- Public testimony during the Shoreline Master Program indicating the west side of the Parkway as more desirable for the trail compared to the water side.

Our evaluation indicates that:

- Corridor travel time for southbound motorists along Schuster Parkway would increase by about 50 seconds during the AM peak hour with the road diet compared to conditions without the road diet.
- Increased traffic congestion due to the road diet could only be expected by motorists for the duration of the AM peak hour (and only in the southbound direction).
- Increased travel time is mostly due to the two likely transition points of the trail: 1) Ruston Way Viaduct and 2) S 4th Street (Dock Street) intersection.
- The lane removal would provide other benefits, such as slowing parkway traffic to meet the posted 40 mph speed limit and would provide bicyclists and pedestrians with a formal travel path between the important areas of Tacoma mentioned in the first paragraph.
- While existing bicycle and pedestrian usage is relatively low along Schuster Parkway (mainly due to the undesirable and unsafe biking and walking conditions in the corridor), bicycle ridership and pedestrian activity is expected to increase due to the infrastructure changes that would benefit pedestrian and bicycle users and the completion of the "missing link" in the shared-use waterfront trail between Downtown and Old Town. Also, part of the increase in usage could result from some motorists shifting to other modes of travel to commute to the Downtown area. Similar projects in Seattle (Burke Gilman Trail and Alki Trail) have resulted in regionally significant well-used multi-modal trails and are widely used by bicycle commuters.

To keep this analysis at the feasibility level, specifics about the design of the Schuster Corridor were not assumed or accounted for, excepting the road diet between the Ruston Way viaduct and

S 4th Street. Conceptual design alternatives will be developed as a next step in the project, and more in-depth analysis with regards to these design alternatives will accompany the work. More refined traffic congestion and delay information is contingent upon final design of the two identified transition points and whether the City pursues the Road Diet option or a different trail alignment.

BENEFITS OF A ROAD DIET/TRAIL CONVERSION

The specific focus of this evaluation was to address the feasibility of a road diet concept on Schuster Parkway as a possible option for accommodating the Schuster Corridor Trail. Other options, or variations thereof, may also be considered as part of the formal project concept and design effort. The following sections outline the benefits of the road diet option along Schuster Parkway and provide bicycle user estimates for the proposed shared-use trail.

TRAFFIC CALMING BENEFITS

Research by the Federal Highway Administration (FHWA) cites increased safety via speed reduction as one of the most significant benefits of a road diet. While many motorists on Schuster Parkway currently drive in excess of the posted 40 mph limit, a road diet would encourage driving speeds closer to the posted limit on the portion of the roadway that includes the auto travel lane reduction. This speed reduction would result in a safer driving environments as well as a more comfortable setting for bicyclists and pedestrians.

TRAIL USER ESTIMATES

The number of bicyclists using a shared-use path or trail varies significantly based on a number of factors, including season, weather, and connectivity with other bicycle facilities. Fehr & Peers developed Schuster Parkway Trail user estimates using the following:

- Two-hour bicycle counts taken in October 2012 on the Ruston Way Walking Path near the northern terminus of Schuster Parkway (provided by the Puget Sound Regional Council [PSRC]).
- Future travel demand generated by the Point Ruston development.

- Seasonal and temporal adjustment factors from the National Bicycle and Pedestrian Documentation Project (NBPDP), a joint effort of the Institute of Transportation Engineers and Alta Planning & Design.

Based on this analysis, the Schuster Parkway Trail could expect 350 – 390 daily weekday bicycle trips and 200,000 – 220,000 annual trips. As a point of comparison, the popular Alki Trail that connects Alki Beach with Downtown Seattle (via the Elliott Bay Trail) carries about 420 bicycle trips on a typical weekday and 260,000 trips annually. The Burke Gilman Trail serves up to 500 bicyclists and 300 pedestrians per peak hour.

AVERAGE DAILY TRAFFIC AND ROAD DIET CASE STUDIES

Average daily traffic (ADT) volumes along the Schuster Corridor have declined over the past decade and have leveled out to approximately 23,500 ADT over the past five years. Conventional practice generally avoids removing travel lanes on four-lane roadway facilities with ADT in excess of 20,000. Generally speaking, a facility with fewer than four lanes would not have adequate capacity to meet this demand, causing many trips to divert to other routes. However, a two-lane road diet can accommodate up to 30,000 ADT in certain cases. For example, Lake Washington Boulevard in Kirkland, Washington, actually carried more daily traffic (23,000 to 25,900) after two-lane road diet implementation. In Portland, Oregon, a four-lane roadway with 30,000 ADT, Southeast Tacoma Street, underwent a two-lane road diet with only minimal diversion. These case studies are summarized in **Table 1**.

TABLE 1 – ROAD DIET CASE STUDIES

Street	Cross Section	ADT Before	ADT After
Lake Washington Boulevard – Kirkland, WA <i>South of NE 60th Street</i>	4 lanes to 2 + TWLTL ¹ + bike lanes	23,000	25,913 ²
Lake Washington Boulevard – Kirkland, WA <i>North of NE 60th Street</i>	4 lanes to 2 + bike lanes + parking	11,000	12,610
SE Tacoma Street – Portland, OR <i>West of SE 11th Avenue</i>	4 lanes to 2 + TWLTL ¹ + parking (one side)	~30,000	29,500

Source: Walkable Communities, Inc. and City of Portland, OR

¹ Two-way left-turn lane

² ADT as much as 30,000 during closure/reconstruction of nearby roadway

Schuster Parkway is a unique case compared to most road diet projects. Many arterial and collector roadways with fewer than four travel lanes have a capacity ceiling in the range of 20,000 to 25,000 ADT due to traffic control, intersecting streets, on-street parking, speed control, and access management needs. Schuster Parkway, however, has a 40 mph posted speed, median separation of the northbound and southbound travel lanes, no on-street parking, and no access points between S 4th Street and the Ruston Way Viaduct. Consequently, the daily traffic capacity of a three-lane Schuster Parkway would be significantly higher than that of a three-lane arterial or collector.

TRAFFIC CORRIDOR TRAVEL TIME EVALUATION

The following sections discuss the process and results of our traffic delay evaluation. We evaluated AM and PM peak operations for Schuster Parkway for existing year 2012 and two future-year scenarios: a No Action Scenario where no geometric changes are assumed along Schuster Parkway and a Road Diet Scenario – the conversion of a southbound travel lane into a multi-use trail. Future-year 2022 was chosen to capture mid-term traffic growth that may occur independent of the trail project, including full build-out of the Point Ruston mixed-use development at the northern terminus of Ruston Way.

EVALUATION METHODOLOGY

Fehr & Peers used traffic operations software and traffic engineering judgment to develop a baseline model representing the existing AM and PM conditions along the Schuster Parkway corridor. Volumes and signal timings were provided by the City of Tacoma, and additional counts were commissioned in April 2012. The model was then calibrated to match field observations. Subsequently, this model was modified to test the future year No Action and Road Diet Scenarios. Multiple model simulations were averaged to provide travel times along the corridor.

As mentioned, the future year scenario was based on 2022 conditions, assuming full build-out of the Point Ruston mixed-use development combined with 1% annual traffic growth. Ingress and egress traffic volumes from Point Ruston via Ruston Way/Schuster Parkway were taken from the Point Ruston EIS.

Existing and future peak hour traffic volumes are summarized in **Table 2**. As would be expected, the highest 2022 volumes are carried northbound in the PM and southbound in the AM. The southbound AM volume, however, is slightly lower than the northbound PM volume, lending some support for a southbound lane removal.

TABLE 2 – PEAK HOUR VEHICLE VOLUMES

Route	Existing Year 2012		Future Year 2022	
	AM	PM	AM	PM
Northbound	458	1,408	715	1,858
Southbound	1,449	712	1,828	1,067

Source: City of Tacoma and Fehr & Peers.

EVALUATION RESULTS

The results of the existing conditions and future year scenarios are presented in the following subsections. Two travel paths were analyzed: S 4th Street to/from McCarver Street via the Ruston Way viaduct and S 4th Street to/from McCarver Street via N 30th Street. Average travel time results for all scenarios are compared in **Tables 3** and **4**.

Existing Conditions

Currently, southbound travel between S 4th Street and McCarver Street on Schuster Parkway takes an average of 150 to 165 seconds, depending on time of day and route. Likewise, northbound travel time averages 130 to 160 seconds.

2022 No Action Conditions

Under 2022 No Action conditions, northbound PM travel times would increase by less than 20 seconds. On the other hand, southbound AM travel times would increase by 10 to 30 seconds. As would be expected, travel times in the off-peak directions would not change much.

2022 Road Diet Conditions

Under 2022 Road Diet conditions during the PM peak, northbound travel times would not be significantly different than under No Action conditions. The off-peak southbound direction would experience a small travel time increase of about 15 seconds due to the lane removal.

The impact to the AM peak would be more significant due to the higher volume of southbound traffic. Compared to No Action conditions, average southbound travel time along the Ruston Way/Schuster Parkway route between McCarver Street and S 4th Street would increase by about 50 seconds. Likewise, southbound travel along the N 30th Street/Schuster Parkway route between McCarver Street and S 4th Street route would increase by approximately 50 seconds. Corridor delay impacts would originate at the following two locations:

1. **Northern Transition Point at Ruston Way Viaduct and N 30th Street merge area** – This merge area would become a point of constraint due to the southbound lane removal – two converging lanes would need to transition into just one.
2. **S 4th Street Intersection** – Assuming the Road Diet would reduce the number of southbound through lanes entering and exiting the intersection from two to one, the traffic signal would not be able to process as many southbound vehicles per cycle compared to No Action conditions.

The AM and PM travel times within the corridor are shown in Tables 3 and 4. Despite the increase in delay, Schuster Parkway would only experience increased congestion for the duration of the AM peak hour (and only in the southbound direction). Even during this period of increased delay, drivers would not likely divert to other routes.

TABLE 3 – PM PEAK TRAVEL TIME – EXISTING AND FUTURE YEAR WITH SB LANE DROP (IN SECONDS)

Route	Existing		2022 No Action		2022 Road Diet	
	SB	NB	SB	NB	SB	NB
Schuster Pkwy via Ruston Way	152	159	158	176	175	177
Schuster Pkwy via N 30 th Street	149	140	153	142	169	143

Source: Fehr & Peers.

TABLE 4 – AM PEAK TRAVEL TIME – EXISTING AND FUTURE YEAR WITH SB LANE-DROP (IN SECONDS)

Route	Existing		2022 No Action		2022 Road Diet	
	SB	NB	SB	NB	SB	NB
Schuster Pkwy via Ruston Way	165	150	178	152	227	150
Schuster Pkwy via N 30 th Street	158	129	175	133	226	129

Source: Fehr & Peers

CONCLUSION

Currently, travel between S 4th Street and McCarver Street on Schuster Parkway takes approximately two and half minutes by automobile during both the AM and PM peak travel periods. In the future, with the full completion of the Point Ruston mixed-use development and no changes to Schuster Parkway, travel time between S 4th Street and McCarver Street would increase by less than 20 seconds due to additional traffic congestion. With implementation of the road diet, Schuster Parkway travel time would increase by an additional 50 seconds during the AM peak period for a total corridor travel time of approximately three minutes and 40 seconds.

Traffic flow during the PM peak hour would generally not be impacted by the road diet, and drivers could expect a total travel time of approximately two minutes and 50 seconds. Overall, Schuster Parkway would only experience increased congestion due to the road diet for the duration of the AM peak hour (and only in the southbound direction).

The following transition points are primary factors in the projected congestion for Schuster Parkway under the Road Diet scenario and could be further analyzed as part of the phase two conceptual design to identify strategies for mitigating travel time delay at these locations:

1. Northern Transition Point at Ruston Way Viaduct and N 30th Street merge area – This merge area would become a point of constraint due to the southbound lane removal – two converging lanes would need to transition into just one.
2. S 4th Street Intersection – Assuming the Road Diet would reduce the number of southbound through lanes entering and exiting the intersection from two to one, the traffic signal would not be able to process as many southbound vehicles per cycle compared to No Action conditions.

Furthermore, while we do not believe that the expected travel time delay will result in significant traffic diversion into adjacent neighborhoods this analysis was not within the scope of our modeling and could be revisited upon completion of the conceptual design.

The removal of a southbound lane along Schuster Parkway to accommodate a multi-use trail should not result in significant increases in traffic congestion, cause major diversions of traffic to other City streets, and will likely lead to traffic calming benefits. Lastly, bicycle ridership and pedestrian activity is expected to increase due to the infrastructure changes also resulting in an improved travel and safety experience for those users.