



Economic Development Board

Stanwood City Hall
Conference Room
10220 270th Street NW, Stanwood

Meeting information is posted online at
<https://stanwoodwa.org/>.

Friday, November 17, 2023, at 7:30 AM

1. Receive the Minutes of the June 16, 2023 Meeting
2. New Member Introductions – Teresa LaFluer, Lakhpal Brar, and Carmie Ingram
3. East End Traffic Calming Options
4. SR 532 Downtown Impact Analysis
5. Business License Analytics
6. Traffic Calming Options
7. EDB Next Meeting on January 19, 2024

Economic Development Board
June 16, 2023 Meeting Minutes



Economic Development Board Minute Meeting Minutes Friday, June 16, 2023 | 7:30 am

Economic Development Board Members Present:

Staff Present: Sarah Cho, Audrey Rotrock

Others Present: Kristine Birkenkopf, Les Anderson, Randy Heagle, David Pelletier

Les Anderson called the meeting to order at 7:34 a.m.

1. Receive the Minutes of the April 21, 2023 Meeting

The minutes of the April 21, 2023 Economic Development Board meeting were approved unanimously.

2. SIP: Amendments

The Board agrees with amendments to the Storefront Improvement Project. They would not like to restrict the areas of who can apply for the program but leave it open to all eligible businesses downtown. The Board would also like to prioritize properties that have a larger need for improvements, and second time applicants would go to the bottom of the list. Establish a lifetime cap of a dollar amount per applicant or number of times an applicant can apply for the grant.

3. Code Update: Title 5 Amendments

Sarah Cho gave a brief summary on Stanwood Municipal Code Title 5 amendments such as defining a purpose for the special events chapter, expanding special event definition to private property, Peddlers, vendors and temporary merchants have been moved into a new chapter – Merchants without a Fixed Location.

4. Business License Analytics

For the month of May 2023, 33 business licenses were processed. 19 of the licenses were non-resident business licenses, 8 of the licenses were home occupation licenses, and 6 of the licenses were city business licenses.

5. Discover Stanwood Camano Analytics

For the month of May 2023, Discover Stanwood Camano had 1,796 users visit the website it had a total of 3,041 pageviews. 73% of the audience found the website through organic search, 19.6% found the website through direct search, 6.5% found the website through referral, and 0.9% found the website through social. The top five states for audience locations were Washington, California, Wyoming, Oregon and Texas. The Facebook page reached 4,267 people with 513 page visits. The Instagram account reached 1,121 people with 100 profile visits.

The Board members would like to know in more detail what people are looking at on the website. They would also like to see a year over year comparison of page the analytics.

6. EDB Next Meeting on July 21, 2023



November 17, 2023

Staff Report

East End Design and Traffic Calming Options

The 2023 / 2024 work plan for the Twin City Mile (TCM) project includes evaluating short term interim design improvements between 88th Avenue and 88th Avenue as well as traffic calming measures. Perteet Inc. and Lankford Associates were hired to prepare preliminary engineering designs for the east end district consistent with the TCM adopted concept plans.

East End Near Term Development Options

The purpose of the east end near-term improvements is to add beautification to the corridor, as well as promote pedestrian visibility and calm traffic as it travels along the corridor. These near-term improvements are expected to be in place for five to ten years while the City works toward the design and implementation of long-term improvements. Two implementation elements are being proposed: 1) improve the mid-block crossing for pedestrian safety and beautification and 2) 88th Avenue / 271st Street intersection improvements to continue implementation of the Twin City Mile and downtown beautification project.

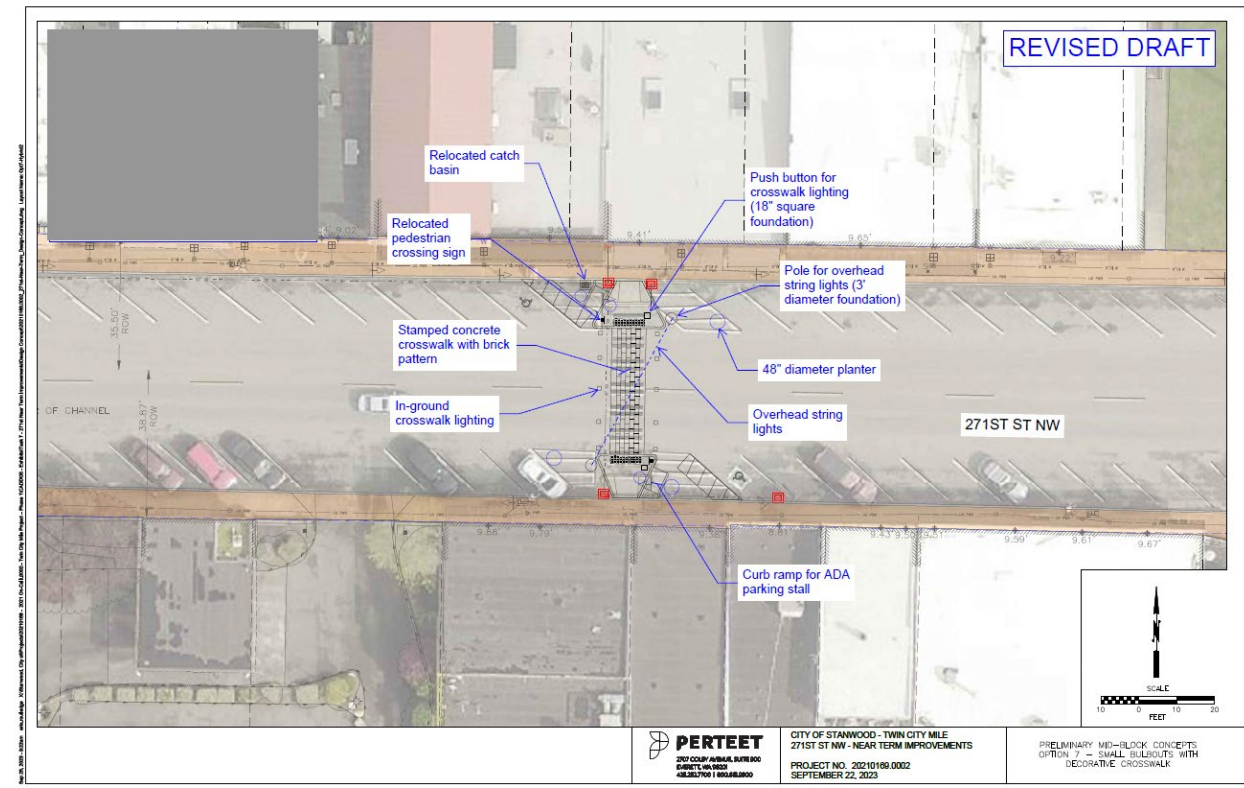
Mid-Block Crossing

Several options were considered on how best to improve visibility of the mid-block crossing while also meeting engineering design standards for ADA parking and access, lighting and drainage.

The location of the ADA parking stalls has a significant impact on the mid-block crossing design. ADA standards dictate stall width, loading/unloading spaces and access ramp requirements. Staff considered relocating the ADA stalls to the 88th Avenue and 84th Avenue intersections, but the move resulted in undesirable design impacts, and it moved people farther away from the store fronts. Additionally, the original TCM concept included raising the cross walk to be level with the sidewalk, however this created design problems with cars backing up over the raised cross walk and diminished the ADA accessibility.

Staff's recommended mid-block crossing improvements include:

- Extending the raised cross walk extension areas for improved visibility;
- Changing out the cross walk to the TCM Brick Road design;
- Include in-ground crosswalk lighting in lieu of raising the cross walk; and
- Add city beautification elements: planter strips and overhead decorative lighting.



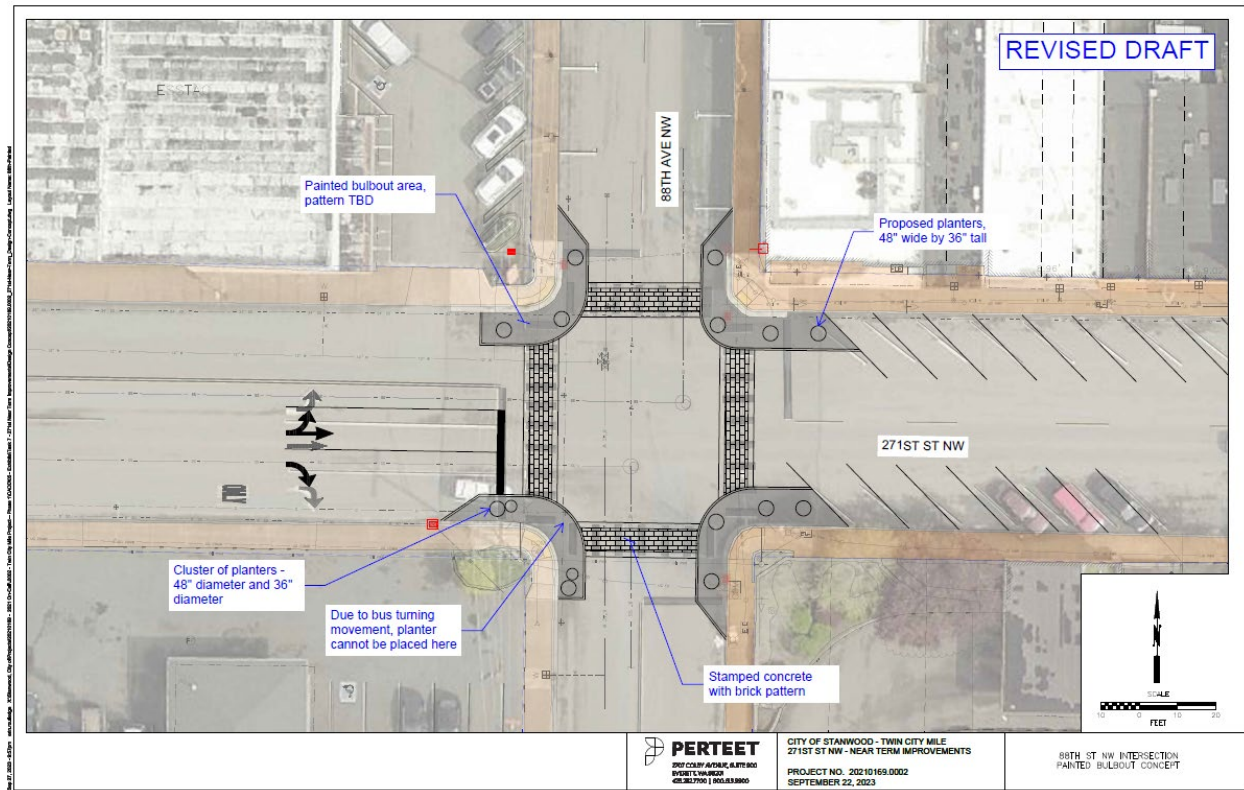
88th Avenue / 271st Street Intersection Improvements

Continuing with the TCM themes, the beautification elements the City identified for the intersection of 271st Street NW and 88th Avenue NW included curb return corner bulb outs, the cement stamped brick concrete crosswalks, and planter pots. With the high cost to reconstruct a full intersection, additional thought was given to how to meet the City's beautification goals while continuing to implement the TCM project goals.

Staff's preferred option shown below is based on the City's goals of implementing beautification opportunities and making pedestrians more visible to vehicles, as well as improving the operation of the intersection. This option is a relatively lower cost to implement because it does not need a full reconstruction of the cement concrete curb returns, and the existing stormwater catch basins and pipe can stay in place and will not need to be moved.

Suggested improvements include:

- Eliminate the northbound turn lane to align the travel lanes (versus off-set travel lanes);
- Apply paint to create bulb outs and place planters to create separation between the vehicle travel paths and the pedestrian space; and
- Add stamped brick concrete crosswalks.



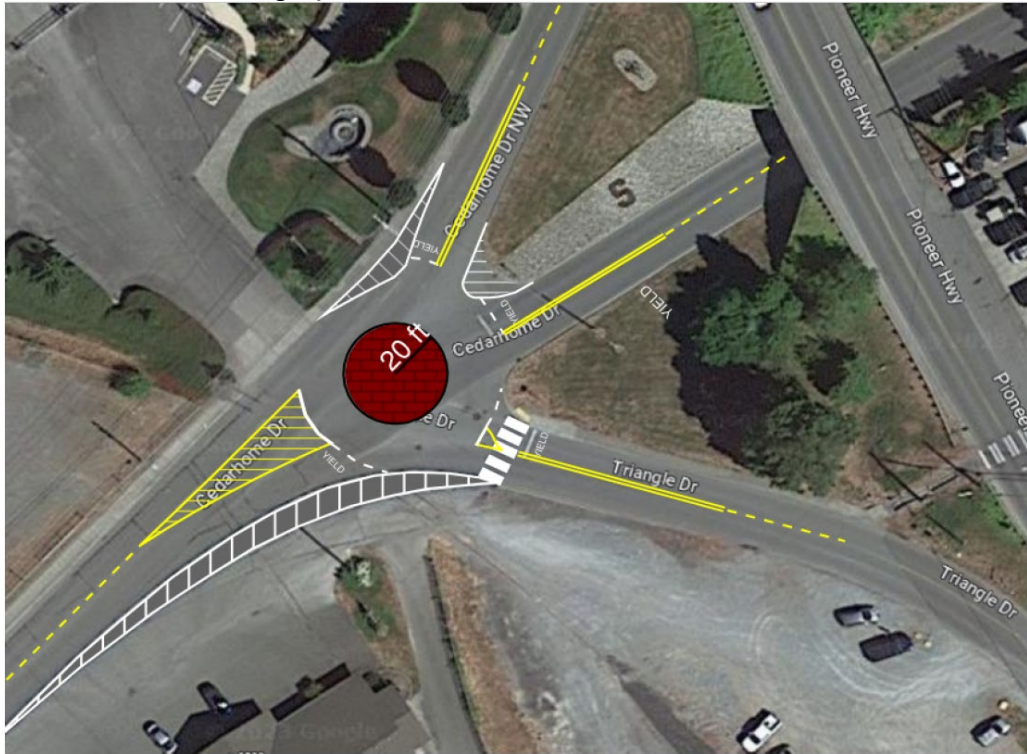
Traffic Calming

A reoccurring comment voiced during the public outreach and committee review of the TCM project was how fast traffic flows coming down Cedarhome Drive to the 88th Avenue stop sign on 271st Street. In response the city initiated a limited scope study to evaluate which types of traffic calming measures could be used to slow westbound drivers and enhance pedestrian safety.

The key to managing traffic speed is to slow it down before it reaches downtown. To achieve this, traffic calming options are being proposed on Cedarhome Drive and at the intersection of 84th Avenue and 271st. While there are many traffic calming options that can be used to reduce speeds along this corridor, staff has selected the following preferred designs which can be implemented easily with limited impact on the businesses and are cost effective.

Cedarhome Drive Triangle - Mini-Roundabout

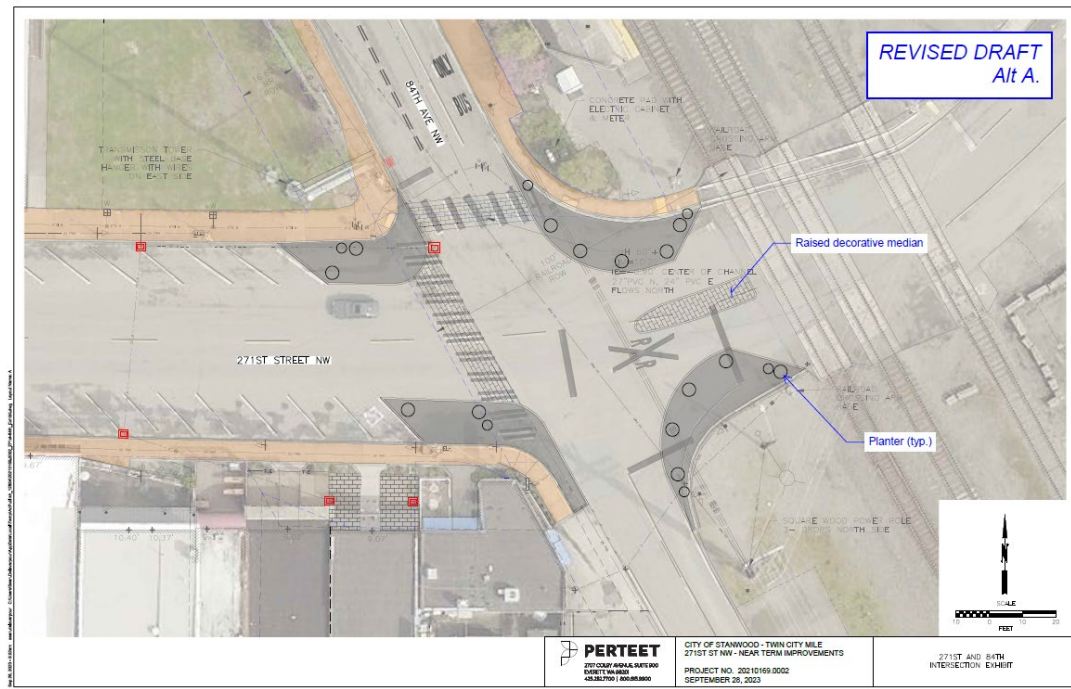
The mini-round about design reduces travel speeds overall because many drivers who currently have a free-flowing path along Cedarhome Drive would now be required to yield at the intersection. This boosts pedestrian safety at the crosswalk across Triangle Drive and should generally decrease the severity of any crashes that occur between vehicles. However, the geometry of the existing footprint does not afford much room to slow approaching traffic with curvature prior to reaching the center island. This diminishes the benefit to some degree, but overall, this installation should be generally effective at reducing speeds.



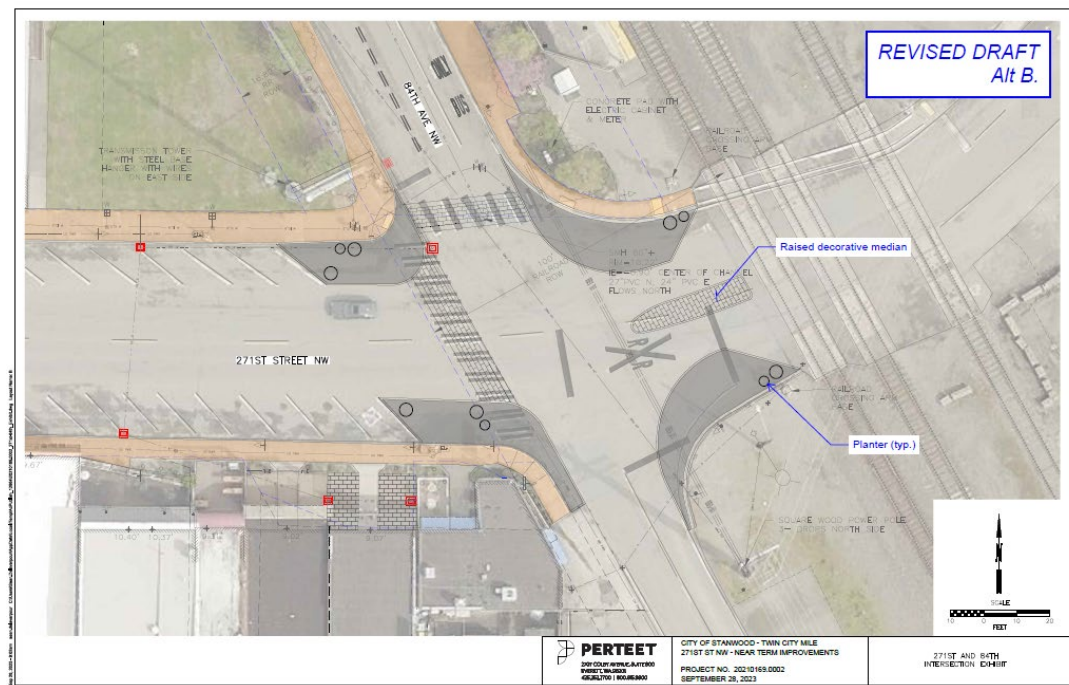
84th Avenue Intersection

Painted Bulb Outs with Planters, Brick Crosswalks and Raised Decorative Median Narrowing travel lanes has been shown to reduce driver travel speeds due to a more enclosed feeling and less room to maneuver. This traffic calming measure proposes a combination of corner and median treatments to achieve this effect. The proposed corner extensions are shown as a combination of channelized extensions with, typically, planter boxes enforcing the desired travel paths. These planter boxes provide an opportunity for decorative treatments and can be moved as necessary to perform maintenance tasks. Additionally, the proposed median island on the east side of the intersection narrows the travel path for through vehicles on 271st Street NW and can be constructed with a decorative pavement treatment. The combined traffic calming for through traffic on 271st Street NW likely totals a reduction of at least 5 mph. It is estimated that implementation would cost approximately \$150,000.00.

Alternative A: Full Planter Design



Alternative B: Minimized Planter Design



The intent is to get Committee feedback on the options prior to meeting with the general public and businesses.

SR 532 Downtown Impact Analysis

WSDOT presented their findings on the SR 532 Existing Conditions Study conducted this past year to the Council on October 12th. As a companion piece of work, the City has been working on different lane configurations for SR 532 between Ovenell Park and 98th Avenue. As a state route, SR 532 needs to be designed as a Complete Street according to WSDOT rules, but there are many design concepts that can be applied to meet the definition of a Complete Street.

There have been many comments about the need to widen SR 532 to four lanes to improve the flow of traffic. While this could potentially improve traffic flow if SR 532 was widened to four lanes along the entire corridor to I-5, it could have devastating consequences on Stanwood's downtown. In addition, the cost to widen the highway and replace the bridge would be enormous and could take decades to accomplish.

WSDOT's current approach is to avoid major widening projects and provide system improvements to manage traffic. System improvements could include roundabouts, signal timing, multimodal improvements, left turn restrictions or other traffic management solutions. Their philosophy has also changed since the last Comp Plan cycle, in that "Our Plan" is "Their Plan". WSDOT supports efficient and affordable travel options by integrating practical solutions and multimodal strategies into road designs that prioritizes community-driven, public/private, low-cost mobility solutions.

Below are several sketches that show the impact of various lane configurations:

- Existing Conditions with Added Bike Lanes;
- 5-Lane Section with Full Complete Streets Elements – Center Median, Bike Lanes and Sidewalks;
- 4-Lane Section with No Median with Bike Lanes and Sidewalks
- 2021 Concept Showing Striped Bike Lanes on Existing Roadway

All options show a roundabout near Ovenell Park and 98th Avenue.

The purpose of this analysis is to provide a range of roadway configurations for Council to continue the visioning process to determine the future of SR 532 and how it relates to downtown Stanwood. The underlying goal is to select a preferred option which will be then included in the Comprehensive Plan. Larger 11x17 copies of the graphics below will be provided at the meeting.

Concept 1: Bike lanes with Buffers within Existing Curbs

Project Description:

- 12 Foot Landscaped Center Median
- 2 – 11 Foot Travel Lanes (1 East Bound and 1 West Bound)
- 3 Foot Bike Separator Between Travel Lanes and Bike Lanes
- 6 Foot Bike Lanes on North and South Sides of Road
- 8 Foot Parking Strip on North Side of SR 532
- 3.5 Foot Landscape Strip on North and South Sides
- 5 Foot Sidewalks

Project Impacts:

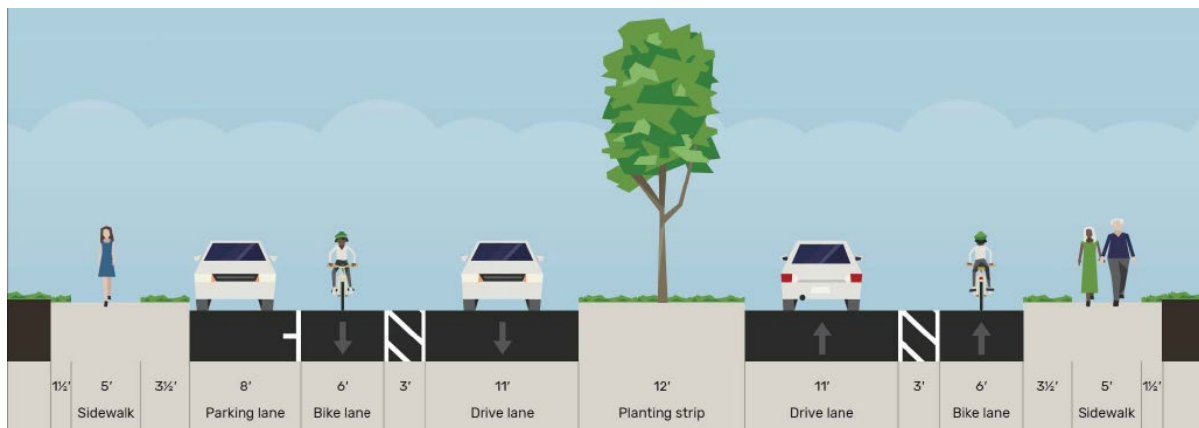
- Sidewalk bulb outs (shown in red) would need to be removed.



SR532 - Downtown Stanwood
City of Stanwood - SR532 Section Concepts

Concept A - 3 Lanes With Buffered Bike Lanes
transpogroup **7** **1**

Cross Section:



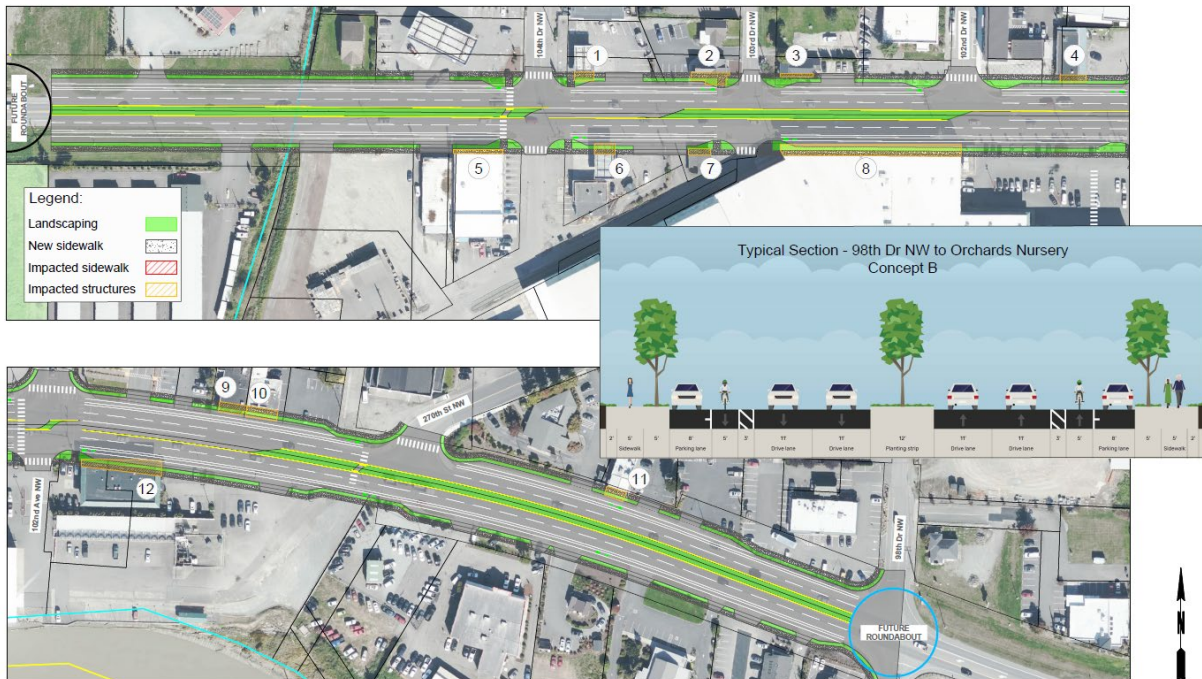
Concept 2: 5-Lane Section with Full Complete Streets Elements

Project Description:

- 12 Foot Landscaped Center Median
- 4 – 11 Foot Travel Lanes (2 East Bound and 2 West Bound)
- 3 Foot Bike Separator Between Travel Lanes and Bike Lanes
- 6 Foot Bike Lanes on North and South Sides of Road
- 8 Foot Parking Strip on North and South Sides of SR 532
- 5 Foot Landscape Strip on North and South Sides
- 5 Foot Sidewalks

Project Impacts:

- Highway widening would be required
- Sidewalks would need to be rebuilt
- 12 businesses would be affected: property and / or buildings
- Right-of-way acquisition would be needed
- Not pedestrian friendly



SR532 - Downtown Stanwood

City of Stanwood - SR532 Section Concepts

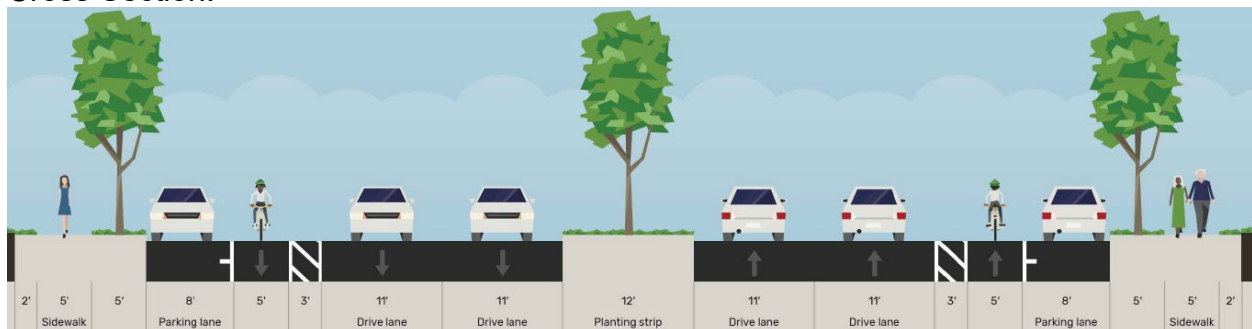
Concept B - 5 Lanes With Buffered Bike Lanes

transpogroup

FIGURE

2

Cross Section:



Concept 3: 4-Lane Section with No Median with Bike Lanes and Sidewalks

Project Description:

- 4 – 11 Foot Travel Lanes (2 East Bound and 2 West Bound)
- 3 Foot Bike Separator Between Travel Lanes and Bike Lanes
- 5 Foot Bike Lanes on North and South Sides of Road
- 8 Foot Parking Strip on North and South Sides of SR 532
- 5 Foot Landscape Strip on North and South Sides
- 5 Foot Sidewalks

Project Impacts:

- Highway widening would be required
- Sidewalks would need to be rebuilt
- 11 businesses would be affected: property and / or buildings
- Right-of-way acquisition would be needed
- Not pedestrian friendly



SR532 - Downtown Stanwood

City of Stanwood - SR532 Section Concepts

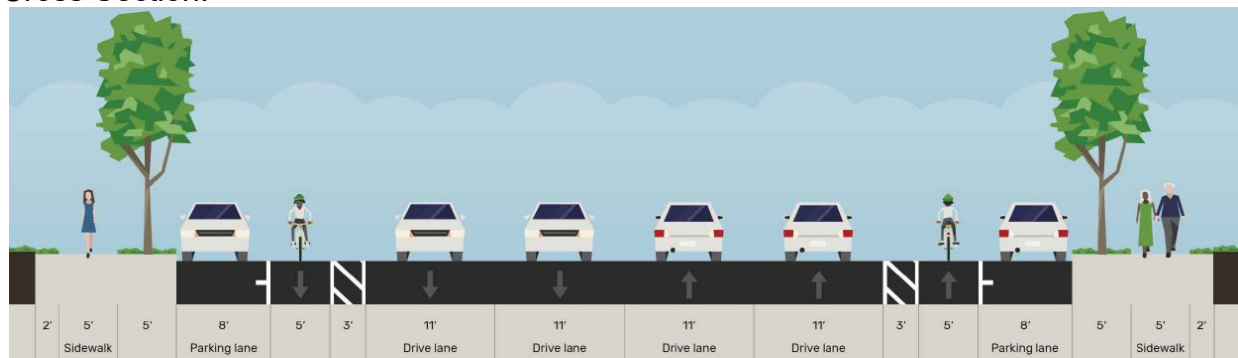
Concept C - 4 Lanes With Left Turn Pocket

FIGURE

transpogroup **57**

3

Cross Section:



2021 Concept: Striped Bike Lanes on Existing Roadway

Project Description:

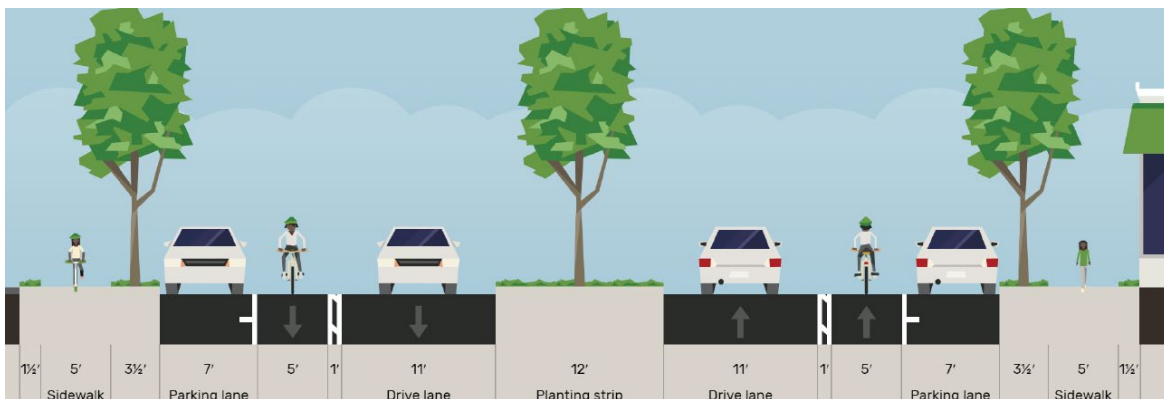
- 12 Foot Landscaped Center Median
- 2 – 11 Foot Travel Lanes (1 East Bound and 1 West Bound)
- 1 Foot Bike Separator Between Travel Lanes and Bike Lanes
- 5 Foot Bike Lanes on North and South Sides of Road
- 7 Foot Parking Strip on North and South Sides of SR 532
- 3.5 Foot Landscape Strip on North and South Sides
- 5 Foot Sidewalks

Project Impacts:

- Highway restriping



Cross Section:



When considering highways as main streets, it is important to consider all functions, not just traffic flow. SR 532 also acts as the entrance to historic downtown; it is the entrance to new Hamilton Landing Park and future Ovenell Park; and is the street front to many businesses.

Several cities have a state highway as their main street. Below are a few Cities that have taken on the challenge of preserving their downtown character while still managing the flow of traffic on a state highway. These cities show the new WSDOT approach to highway design: integration of community desires and pedestrian connections. All three have slightly different approaches, while meeting similar goals.

City of Duvall: SR 203

- Decorative Street Lights
- Landscaped Center Median (Low Profile)
- Bike Lanes and On-Street parking
- Street Trees and Sidewalk Landscaping
- Crosswalk Concrete Treatments



City of Carnation: SR 203

- Decorative Street Lights
- Shared Bike Lanes with Traffic Lane
- Decorative Paver On-Street parking
- Street Trees and Sidewalk Landscaping
- Pedestrian Bulb-Outs and Crosswalk Concrete Treatments



City of Snoqualmie: SR 202

- Decorative Street Lights
- Mid-Block Landscaped Pedestrian Crossing
- Street Trees
- Angled and Parallel On-Street Parking

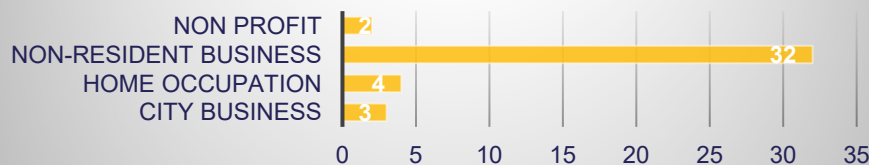
Business License Analytics for August 2023

For the month of October 2023, 41 business licenses were processed. 32 of the licenses were non-resident business licenses, 4 of the licenses were home occupation licenses, 3 of the licenses were city business licenses, and 2 was for a non-profit. According to the NAICS codes for each business:

Industry	Percentage of Businesses
Retail Trade	3%
Construction	56%
Manufacturing	7%
Health Care and Social Assistance	7%
Administrative & Support & Waste Management & Remediation Services	5%
Professional, Scientific, & Technical Services	10%
Other Services	10%
Real Estate Rental and Licensing	2%

October 2023 Business Licenses

Total: 41



October 2023 Business Licenses

Total: 41

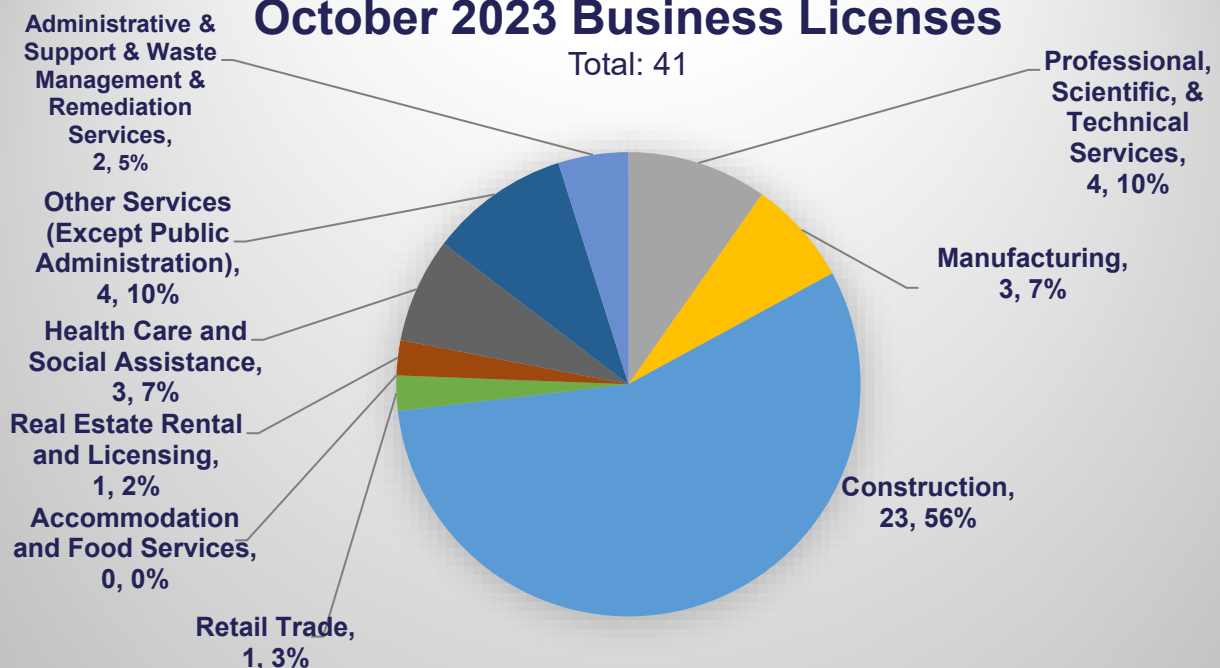


Exhibit X

Stanwood Traffic Calming Screening Memo Draft

MEMORANDUM

2700 Colby Avenue, Suite 900, Everett, WA 98201 | P 425.252.7700

To: Patricia Love, City of Stanwood

From: Brent Powell, PE, PTOE
Gina Parenteau, PE

Date: September 22, 2023

Re: Stanwood Twin City Mile – Traffic Calming Screening Analysis Summary **DRAFT**

INTRODUCTION

The City of Stanwood (City) hired Perteet Inc. (Perteet) to conduct an assessment of potential traffic calming solutions and perform preliminary design services for three project sites. The first site is the intersection of 271st Street NW and 84th Avenue NW, where the City has identified speeding problems and seeks a traffic calming treatment to slow westbound drivers to enhance pedestrian safety. The second site is along Cedarhome Drive in proximity to the rail track, where Community Transit has identified instances of vehicles overtaking buses that have come to a stop for safety checks before traversing the rail track. The City requested Perteet evaluate options to control traffic and limit or eliminate this driver behavior along this segment. The third site is the intersection of Cedarhome Drive at Triangle Drive, where the City asked Perteet to perform a preliminary assessment of roundabout feasibility and efficacy.

This memorandum outlines the purpose, objectives, and scope of Perteet's assessment, focusing on addressing safety concerns, enhancing pedestrian safety, and fostering safety at rail crossings. The analysis below is separated by location. Per the City's request, Perteet did a more in-depth study of options at the 271st Street NW and 84th Avenue NW intersection, as that site is a part of the Twin City Mile corridor project. The evaluations at the remaining two project sites are more conceptual at this stage and could be evaluated in the future if requested by the City.

LOCATION 1: INTERSECTION OF 271ST STREET NW AND 84TH AVENUE NW

Perteet evaluated traffic calming treatments through an alternatives screening analysis. This process narrowed down the list of all common traffic calming treatments to just those applicable to the existing site and traffic conditions for the intersection of 271st Street NW and 84th Avenue NW.

The methodology of the alternatives screening analysis included five steps:

1. Identifying and listing all traffic calming measures from the Federal Highway Administration (FHWA) Traffic Calming ePrimer (ePrimer).

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2. Conducting a desktop site investigation at the intersection of 271st Street NW and 84th Avenue NW. This involved identifying and documenting the existing conditions, including roadway classification, and other relevant factors that could impact the selection and effectiveness of traffic calming measures.
3. Screening the measures from Step 1 using criteria for applicability as listed in the ePrimer, resulting in a list of only measures that are applicable to intersection of 271st Street NW and 84th Avenue NW site conditions.
4. Collaborating with the City to determine which concepts to advance to an initial plan and opinion of cost development stage.
5. Analyzing anticipated traffic calming benefits and project costs, including reviewing low-cost alternative treatments in recognition of limited available funding for implementation and further refining candidate project lists based on City staff evaluations.

Step 1: Traffic Calming Measures

The ePrimer presents traffic calming measures to address speeding and cut-through traffic patterns. The list below demonstrates which treatments are found in ePrimer.

- Lateral shift
- Chicane
- Realigned intersection
- Traffic circle
- Small modern/mini roundabout
- Roundabout
- Speed hump
- Speed cushion
- Speed table
- Offset speed table
- Raise crosswalk
- Raised intersection
- Corner extension
- Choker
- On-street parking
- Road diet
- Diagonal diverter
- Full closure
- Half closure
- Median barrier
- Forced turn island

Not all treatments in these lists are applicable to the project site. The following steps detail Pertee's investigation into which measures are appropriate for each site.

Step 2: Site Investigation

Perteet completed a site review of the 271st Street NW and 84th Avenue NW intersection. Below are observations made of the existing conditions.

- 271st Street NW is an urban minor collector and 84th Avenue NW is a local (non-collector) street
- The intersection includes marked crosswalks across the west and north legs
- The 84th Avenue NW approaches are stop controlled
- Intersection approaches on all four legs have relatively flat slopes (less than 5%)
- BNSF railroad tracks cross Cedarhome Drive immediately east of the intersection
- There is a marked bus lane along the east side of 84th Avenue NW north of the intersection to provide access to the transit connection with the Sounder train that uses the railroad tracks

Step 3: Traffic Calming Screening Analysis

Not all traffic calming measures are applicable to all types of sites. Different roadway classifications, geometric conditions, and traffic situations can make certain measures inappropriate for use. Perteet screened out these inappropriate measures based on information provided in the ePrimer and site investigation. That analysis is summarized in this step.

Table 1 presents a summary of applicability for each measure at Intersection of 271st Street NW and 84th Avenue NW. The green checkmark icon indicates that a measure is applicable based on all relevant site parameters and, therefore, it is a candidate for further evaluation in the later steps in this process. Orange text indicates that a measure is potentially applicable based on-site characteristics, however, there is at least one question that must be resolved before making a final judgement. And black text indicates that a treatment is inappropriate for a site and will not be advanced beyond this step.

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Table 1. Screening Analysis Summary.

Measure	271st Street NW and 84th Avenue NW
ePrimer	
Lateral shift	Segment treatment only; not applicable at intersections
Chicane	Segment treatment only; not applicable at intersections
Realigned intersection	Only applicable at three-leg intersections
Traffic circle	This is a major intersection; traffic circles are better suited for residential streets
Small modern/mini roundabout	Queues generated by the roundabout may interfere with railroad operations
Roundabout	Would require coordination with and approval from BNSF to extend roundabout design across railroad tracks; queues generated by the roundabout may interfere with railroad operations
Speed hump	Segment treatment only; not applicable at intersections
Speed cushion	Segment treatment only; not applicable at intersections
Speed table	Segment treatment only; not applicable at intersections
Offset speed table	Segment treatment only; not applicable at intersections
Raised crosswalk	Project does not aim to restrict or reduce access at intersection
Raised intersection	✓
Corner extensions	✓
Choker	Segment treatment only; not applicable at intersections
Median island	✓
On-street parking	Segment treatment only; not applicable at intersections
Road diet	This treatment would eliminate all parking in the area to provide bicycle lanes or other narrowing treatments
Diagonal diverter	Project does not aim to restrict or reduce access at intersection
Full closure	Project does not aim to restrict or reduce access at intersection
Half closure	Project does not aim to restrict or reduce access at intersection
Median barrier	Project does not aim to restrict or reduce access at intersection
Forced turn island	Project does not aim to restrict or reduce access at intersection

Note that the screening analysis in Table 1 does not account for the magnitude of speed reduction. The evaluation of whether a treatment would be beneficial to correct the problem(s) the City has identified at the intersection is presented in Step 4. This initial screening process only eliminated options based on site characteristics that are incompatible with certain treatments.

Step 4: Recommended Design Concepts

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As noted in Step 3 and summarized in Table 1, many of the traffic calming treatments are of a site type (intersection or segment) that rule out their application for the candidate locations. Beyond that, there were several main considerations that ruled out groups of treatments, including:

- Certain treatments are incompatible based on roadway classification.
- BNSF railroad proximity

Perteet collaborated with the City to identify two treatments that could be used at this intersection. These recommended options are discussed below.

Option 1-A: Raised Intersection

The raised intersection is characterized by a flat elevated surface encompassing the entire junction with ramps on all entry points. This raised pavement space is typically at the same elevation as the adjacent sidewalks, eliminating the need for curb ramps to facilitate pedestrian crossings. Per the ePrimer, a raised intersection is a solution to enhance road safety and pedestrian well-being, particularly in urban areas. The ePrimer cites a study showing a 1 – 5 mph reduction in 85th percentile travel speeds at a series of raised intersections installed in Florida. Additionally, it notes that “pedestrian safety is improved because a pedestrian is more visible to an oncoming motorist and the pedestrian has an elevated view of oncoming traffic.”

The proposed raised intersection shown in Figure 1 includes an opportunity for aesthetic enhancements consistent with the vision for the Twin City Mile program, such as the use of decorative pavements (shown here spanning the interior of the intersection but these could be used for crosswalks or on the approach ramps) and a landscaping opportunity at the southwest corner of the intersection.

A raised intersection at 271st Street NW and 84th Avenue NW could not impact railroad operations as the traffic heading westbound across the tracks would not reach a stop or yield sign that could lead to backups across the tracks; westbound traffic will remain free flowing, same as today.

The full reconstruction of the intersection does trigger relatively high project costs. See the discussion in the following step for more details. There is no low-cost alternative for a raised intersection because of the need to reconstruct the intersection pavements to elevate the intersection.

If this alternative is advanced for further design, Perteet recommends collaborating with maintenance crews, school bus routes, transit routes, and emergency services to confirm acceptance of this vertical element that all vehicles at the intersection will need to navigate.

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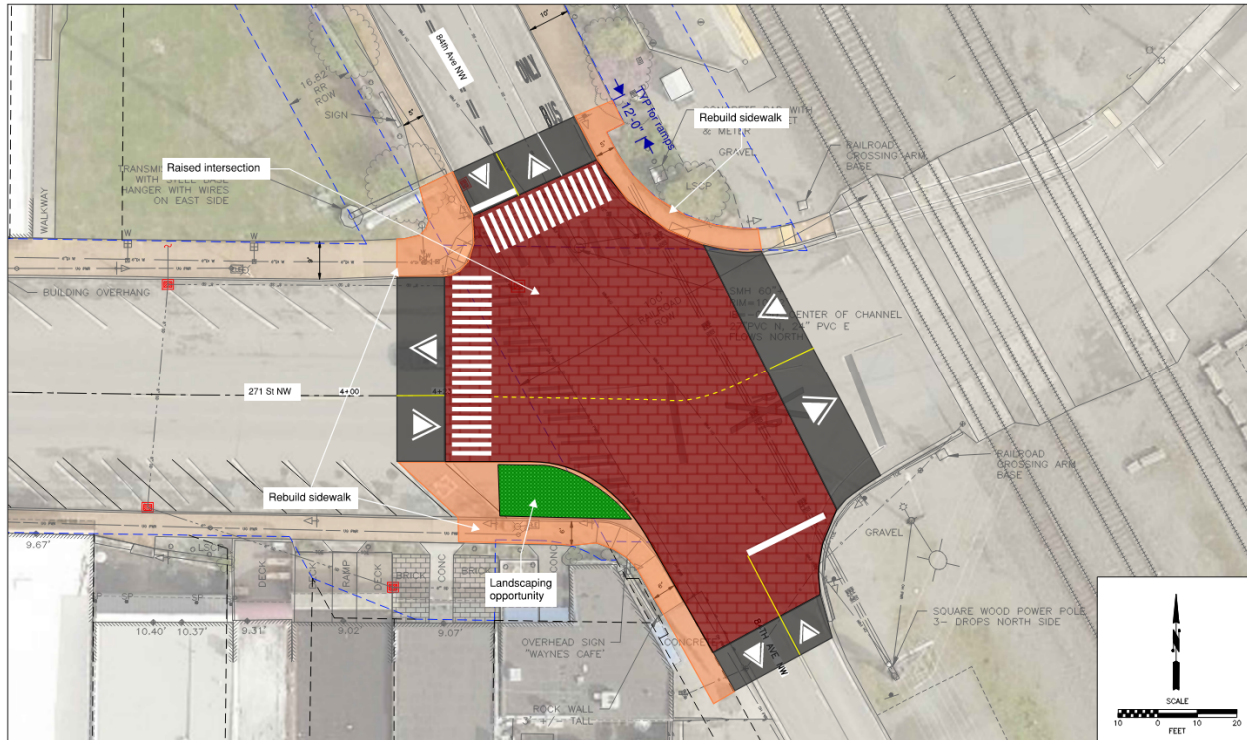


Figure 1: Raised intersection exhibit.

Option 1-B: Median Island plus Corner Extension

While Option 1-A provides traffic calming by changing the drivers vertical travel path, this Option 1-B achieves it through a horizontal extension of the sidewalk into the street and the addition of a median island, which yields a narrower roadway section. This narrowing effect has been shown to reduce driver travel speeds due to a more enclosed feeling and less room to maneuver. Figure 2 displays the proposed combination of corner and median treatments to achieve this effect. The proposed corner extensions are shown as a combination of channelized extensions with, typically, planter boxes enforcing the desired travel paths. These planter boxes provide an opportunity for decorative treatments and can be moved as necessary to perform maintenance tasks. Additionally, the proposed median island on the east side of the intersection narrows the travel path for through vehicles on 271st Street NW and can be constructed with a decorative pavement treatment, as shown in Figure 2.

The combined traffic calming for through traffic on 271st Street NW likely totals a reduction of at least 5 mph. The ePrimer lists the impact of a median island alone as up to 5 mph (with 2–3 mph reductions most commonly) and notes the effect of corner extensions can be up to 3.5 mph reductions. The corner extensions also provide some narrowing of the pedestrian crosswalk overlaps with vehicle travel lanes.

This option also will not impede railroad operations or create backups across the tracks, for the same reasons as Option 1-A.

To maximize cost-effectiveness, Perteet recommends employing channelization along with the addition of planters instead of opting for concrete curb extensions as part of the corner extension component for this traffic

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calming measure. This approach not only preserves the measure's effectiveness but also presents a more budget-friendly alternative. If budget allows the corner extensions with planters could be built as cement concrete curb and sidewalk extensions.

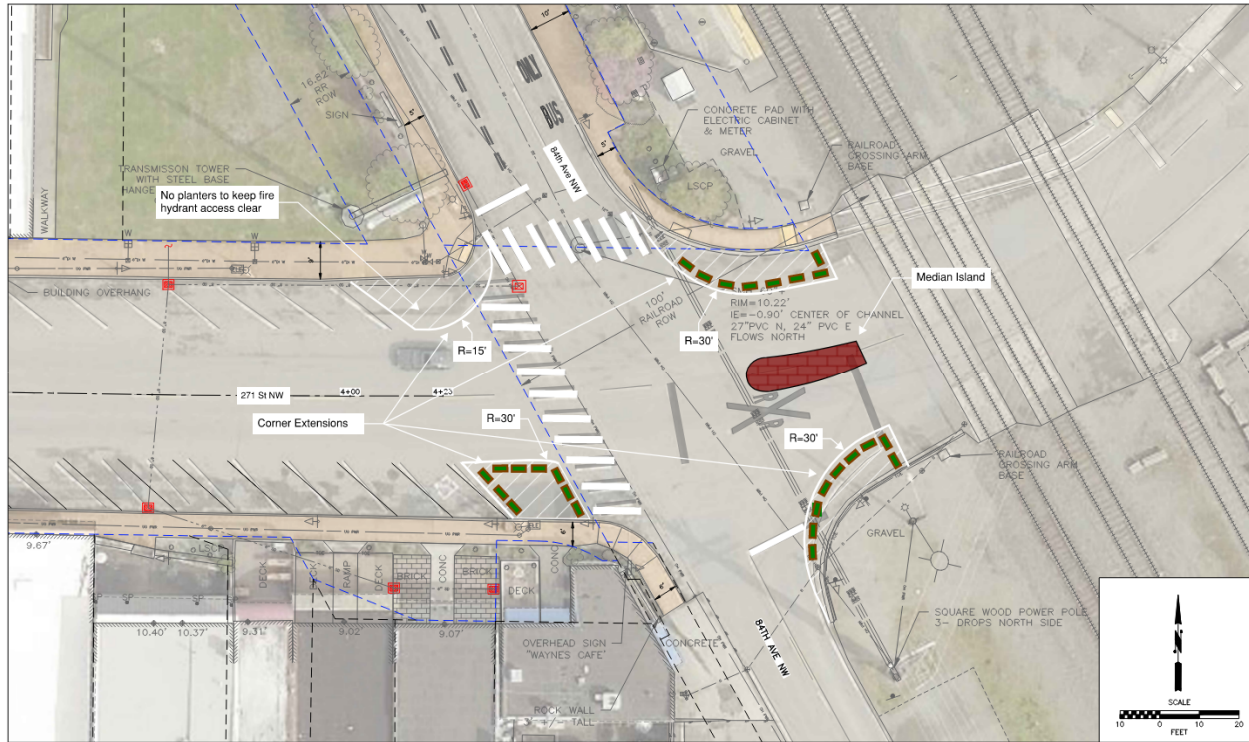


Figure 2: Median island and corner extension exhibit.

Step 5: Cost Analysis

Perteeet prepared a planning-level opinion of cost for both of the options shown in Step 4. These costs are summarized, by phase, in Table 2.

Table 2. 271st Street NW and 84th Avenue NW Planning-Level Opinion of Cost.

Alternative	RW	PE	CN (Incl. CM)	Total
A Raised Intersection	\$113,000	\$159,000	\$1,776,000	\$2,048,000
B Corner Extensions, Median	\$0	\$11,000	\$132,000	\$143,000

Terminology: RW – Right of Way, PE – Preliminary Engineering, CN – Construction, CM – Construction Management

The following notes and assumptions apply to the numbers in Table 2.

- Quantity measurements for these opinions of cost were based on aerial imagery and GIS mapping (including GIS right-of-way).
- Proposed pavement sections assumed to be 8 inches cement concrete pavement over 6 inches crushed surfacing.

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- For the raised intersection concept, the approach ramps are assumed to be standard roadway cement concrete pavement and the intersection interior is decorative roadway cement concrete pavement.
- Flow control and water quality stormwater requirements are not triggered based on the scale of impact, which is similar to the 271st Street NW and 92nd Avenue NW project.
- Existing illumination is sufficient for the intersection and will be maintained. (Perteet did not perform a lighting analysis to evaluate this assumption.)
- Landscape areas are irrigated.
- Bid item unit costs are generally based on or similar to recent bid item costs for the 271st Street NW and 92nd Avenue NW project.
- Construction contingency: 30% of construction costs; to cover additional project costs to be identified during final design.
- Construction engineering and administration (CM phase): 15% of construction subtotal, including mobilization.
- Preliminary engineering phase, including administration: 10% of construction total.
- The preliminary engineering cost for the corner extensions with median concept assumes that the City will complete all coordination with BNSF prior to and during design and that the project would require at most two plan/opinion of cost submittals and special provision specifications are not needed.
- All costs presented include inflation for design in 2024, ROW acquisition in 2024 (if required), and construction in 2025.
- Annual inflation rates assumed to be 5% per year for PE, CM, and RW elements; 7% per year for CN costs.

The costs presented in this section also assume that the construction of traffic calming elements at this intersection would occur as an independent design and construction project. Costs will decrease somewhat for the raised intersection option and significantly for the corner extension/median option if the design and/or construction work is combined with another element of the Twin City Mile program.

LOCATION 2: CEDARHOME DR. (SEGMENT)

The second site, located on Cedarhome Dr. near the rail track, has been identified as an area where vehicles have been observed illegally overtaking transit buses during safety checks before crossing the rail track. This driver behavior could lead to head-on crashes. Implementing traffic calming measures at this location to restrict this behavior would enhance the safety of all passengers and road users. Perteet recommends utilizing flexible delineator posts as a cost-effective solution for separating traffic and enhancing safety. These delineator posts are a popular choice for barrier treatments due to their relatively low cost, visibility, and ease of installation. While they provide an effective buffer, it's important to note that they may require periodic maintenance and may not be as aesthetically pleasing as more permanent options. Perteet considered other options like jersey barriers, but those require additional expenses due to necessary roadway widening, making the flexible post option the most cost-effective solution for this specific location.

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Perteet recommends installing a series of the flexible delineator posts at regular intervals. The specific length of the series should be determined during a design effort with an evaluation of turning movements to make sure the posts do not restrict any adjacent driveway turns.

LOCATION 3: CEDARHOME DR. AND TRIANGLE DRIVE

The City asked Perteet to assess if a roundabout would be viable as a speed-reduction treatment at the Cedarhome Dr. location near its intersection and Triangle Dr. intersection. Perteet preformed a preliminary site assessment and recognized the potential for two different treatments of varying cost and impact. Below are the two options for consideration: as mini-roundabout and a standard size, single lane roundabout. Both of these are preliminary concepts and require additional design work to approach a final concept. This additional work would include performing necessary roundabout design checks for fastest-path travel speeds, turn simulations, and sight distance evaluations. Perteet can perform these additional design services if requested.

Option 3-A: Mini-Roundabout

A mini-roundabout circulates traffic around a center island that is, as the name suggests, smaller than a full-size roundabout. Notably, this roundabout includes a central island that can be traversed, accommodating larger vehicles when necessary. The center island still serves as an important speed-control element as it is designed to impede the straight-line travel path through the intersection, forcing drivers to slow down with some curvature to navigate around it (or to experience an uncomfortable vertical bump if a driver chooses to maintain their straight-line path). A well-designed mini-roundabout excels at moderating traffic speeds, reducing the occurrence of angle and turning collisions, and enhancing overall intersection safety. However, mini roundabouts are often about seeking a compromise between full roundabout design standards and a practical project from a cost and scope standpoint.

Mini-roundabouts are typically selected as a lower-cost option that fits within the footprint of an existing intersection. Figure 3 shows how the existing intersection configuration could be modified to fit the center island and a circulating lane around it. Note the use of channelizing buffers and medians to route traffic into the desired travel paths. These treatments are shown with channelization instead of raised cement concrete curbed elements to reduce the project cost and to maintain heavy vehicle accommodations.

Overall, Perteet anticipates that this type of design would reduce travel speeds overall because many drivers who currently have a free-flowing path along Cedarhome Drive would now be required to yield at the intersection. This boosts pedestrian safety at the crosswalk across Triangle Drive and should generally decrease the severity of any crashes that occur between vehicles. However, the geometry of the existing footprint does not afford much room to slow approaching traffic with curvature prior to reaching the center island. This diminishes the benefit to some degree, but overall this installation should be generally effective at reducing speeds. Flexible posts will be necessary in some locations—particularly the triangular channelization area along the northwest curb line of the intersection—to block drivers from using a straight-line travel path that can avoid the center island altogether.

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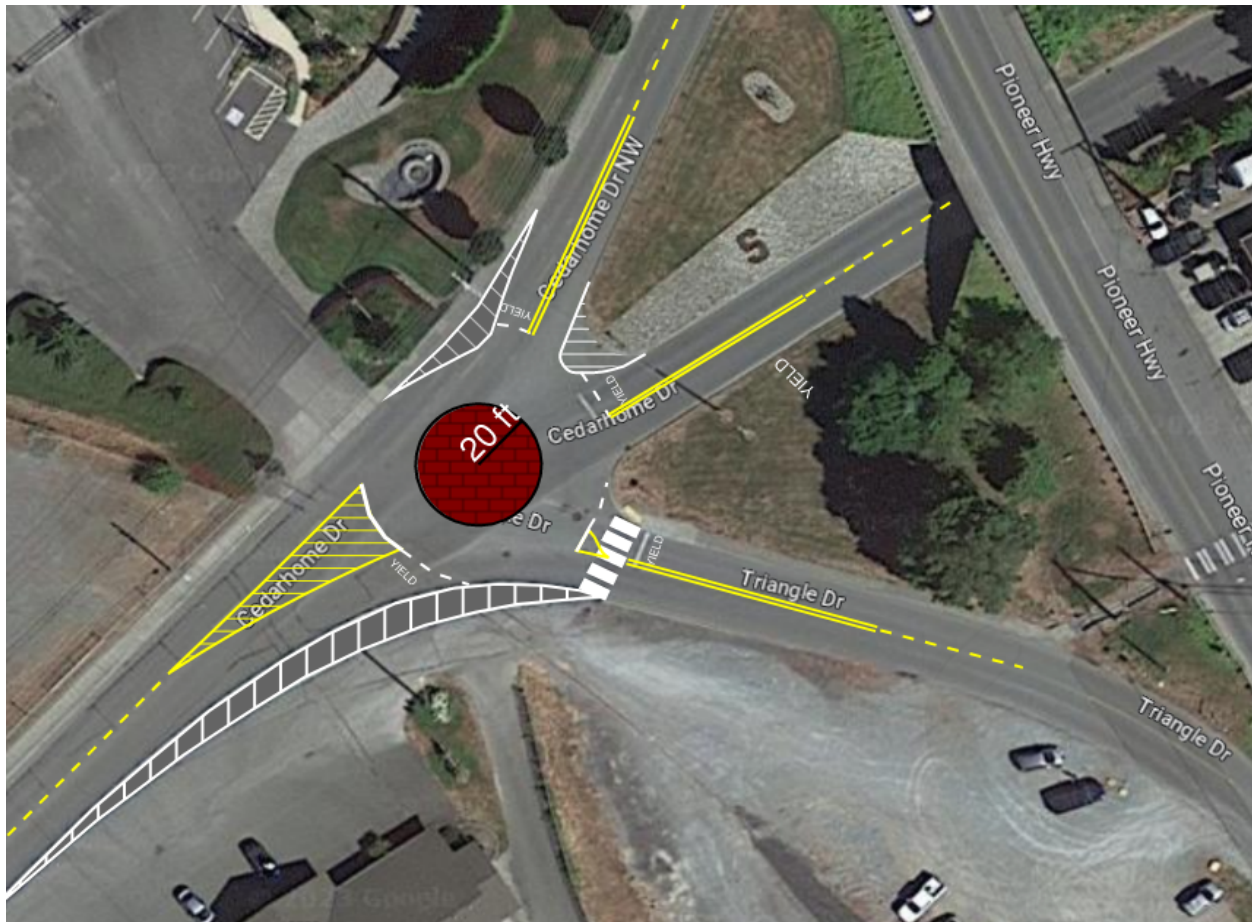


Figure 3: Mini Roundabout Concept Sketch.

Option 3-B: Roundabout

In contrast to Option 3-A, a full-size roundabout uses a larger circular intersection design. Notably, this roundabout includes a central island that cannot be traversed fully, allowing for central landscaping with ground cover, flowers, and street trees to enhance its aesthetic appeal. This design effectively moderates traffic speeds, reduces conflict points between drivers, and facilitates more comfortable bicycle and pedestrian movements than other types of unsignalized intersections. Roundabouts are renowned for their efficiency in managing traffic flow and enhancing safety.

Figure 4 illustrates a potential footprint for a full roundabout concept. The center island is larger—over twice as large of an island diameter as with Option 3-A—and this is configured to facilitate most truck movements via just the asphalt pavement surrounding the center island. The outer ring of the center island is a drivable surface that larger trucks can use as necessary to make turning movements at the intersection. As Figure 4 shows, the footprint of the intersection is larger than the existing intersection. As such, this figure includes construction of new curb lines with planter strips and sidewalks to complete the intersection. (These elements could be omitted or phased if

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desired.) The figure also illustrates more curvature on the approaches for most legs of the intersection, which further work to control travel speeds.

This option has two immediate tradeoffs. First, the project cost will be higher for this option as compared to Option 3-A because of the larger footprint and changes to curb lines. Second, the larger footprint encroaches on the parking lot and driveway for the Northwest Veterinary Clinic of Stanwood immediately south of the intersection. Perteet does not recommend providing driveway connections within roundabouts where it is possible to avoid it or a parcel has an alternative driveway for access.

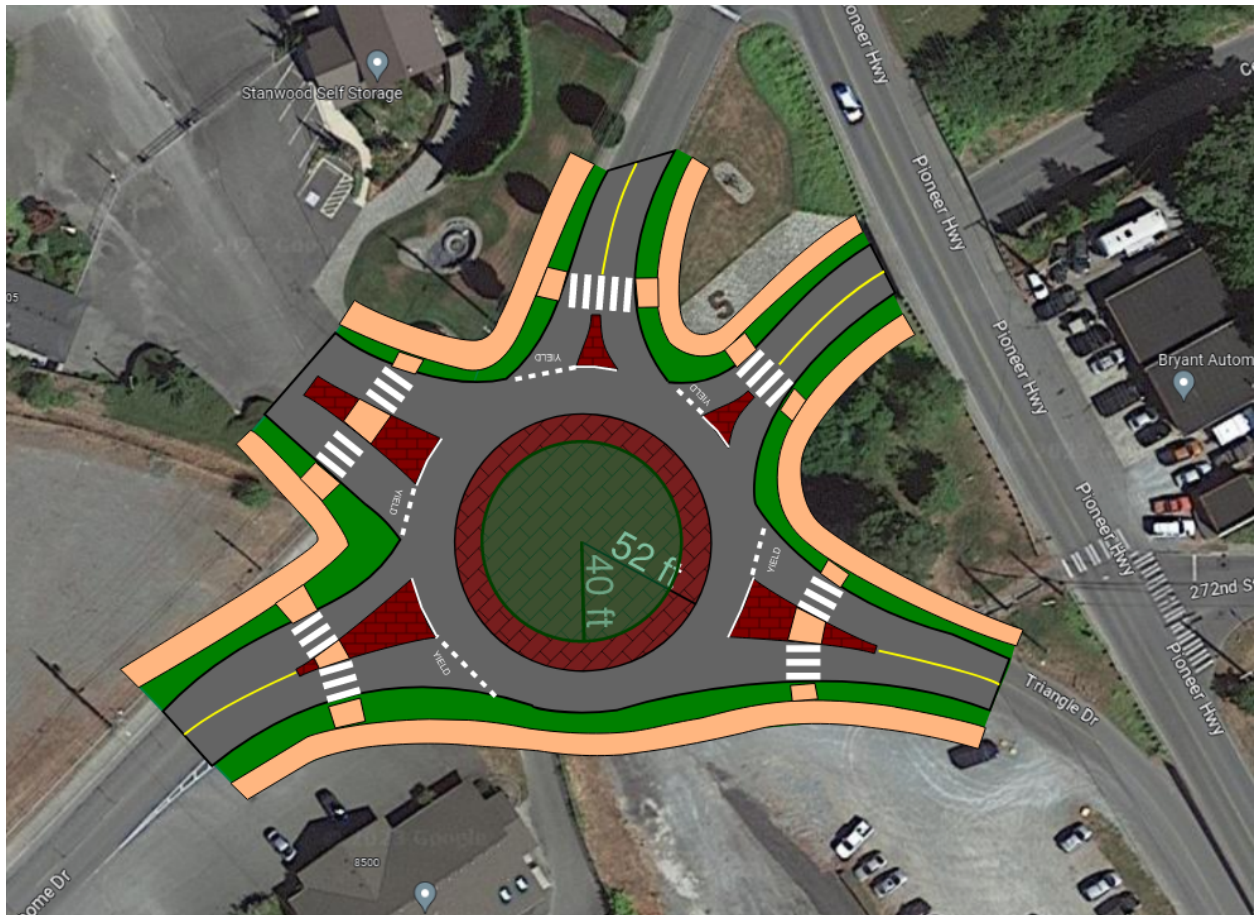


Figure 4: Roundabout concept sketch.

CONCLUSION

Perteet identified concepts that will achieve the City's goal of slowing traffic through the 271st Street NW at 84th Avenue NW intersection and Cedarhome Drive at Triangle Drive intersection. Both locations have an apparent higher-cost option and lower-cost option.

At 271st Street NW and 84th Avenue NW, traffic speed reductions may be similar between the two options, so if the budget is a concern to the City, Perteet recommends pursuing the lower-cost option of the channelized corner

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extensions with median island, such as the design presented in Figure 2. Full-page exhibits and the summary sheets for the planning-level opinions of cost for Location 1 are included as attachments to this memorandum.

Along Cedarhome Drive just east of the railroad tracks, a series of flexible delineator posts placed along the centerline should reduce or eliminate the driver behavior of passing buses that have stopped for a safety check at the railroad track. This approach will be low cost and not require any roadway widening.

At Cedarhome Drive and Triangle Drive, we encourage the City to evaluate modal priorities to assess a recommended treatment. If pedestrian and bicycle safety and comfort are priorities for this intersection, Option 3-B is superior to Option 3-A. If not, then Option 3-A strikes a more practical balance between effectiveness and cost. As noted above, there is necessary preliminary design work that should be done to confirm viability of either roundabout option at this location.

Aug 22, 2023 - 3:40pm beatriz.salva X:\Stanwood_City of Projects\20210169 - 2021 On-Call 0002 - Twin City Mile Project - Phase 1\CADD\05 - Exhibits\Task 7 - 271st Near Term Improvements\Design Concept\20210169.0002_271st Near Term Design Concept.dwg Layout Name: Islands Concept



PERTEET
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EVERETT, WA 98201
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CITY OF STANWOOD - TWIN CITY MILE
271st NEAR TERM
PROJECT NO. 20210169.0002
JUNE 29, 2023

DESIGN CONCEPT

DRAFT

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PLANNING LEVEL OPINION OF COST SUMMARY

Project Description: Twin City Mile (Traffic Calming) - Raised Intersection Alt.	Client: City of Stanwood
Corridor Section: 271st Street NW and 84th Avenue NW	Date: 9/11/2023
Location: Stanwood, WA	Date of Cost Index: 2023
	Calculated By/Entered By: BMS
	Checked By: BMP

Twin City Mile (Traffic Calming) - Raised Intersection Alt.

		ESTIMATED UNIT			
	ITEM	UNIT	COST	QTY	COST
I.	RIGHT OF WAY				
	TEMPORARY CONSTRUCTION EASEMENTS (urban developed)	SF	\$12	6,700	\$80,400
	ADMINISTRATION (titles, appraisals, negotiations consultant, etc.)	EA	\$15,000	2	\$30,000
	RIGHT OF WAY TOTAL				\$110,400
	FUTURE ROW COST BASED ON INFLATION RATE	Inflation 2%	ROW Year 2024	Cost Index 2023	Future Cost \$113,000
II.	CONSTRUCTION				
1	PREPARATION/GRADING/DRAINAGE				
1.1	PREPARATION				
	REMOVING EXISTING PAVEMENT	SY	\$40	1,230	\$49,200
1.2	EARTHWORK				
	ROADWAY EXCAVATION INCL. HAUL	CY	\$50	100	\$5,000
1.3	STORMWATER MITIGATION				
1.4	STORM SEWER				
	CATCH BASIN TYPE 1	EA	\$4,750	8	\$38,000
	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	LF	\$175	500	\$87,500
2	STRUCTURE				
3	SURFACING				
	CEMENT CONCRETE PAVEMENT	SY	\$300	240	\$72,000
	DECORATIVE CEMENT CONCRETE PAVEMENT	SY	\$500	770	\$385,000
	HOT MIX ASPHALT	TON	\$175	30	\$5,250
	CRUSHED SURFACING	TON	\$60	370	\$22,200
4	ROADSIDE DEVELOPMENT				
	TEMP. WATER POLLUTION & EROSION CONTROL (2%)	LS	\$16,000	1	\$16,000
	LANDSCAPING	LS	\$6,000	1	\$6,000
5	TRAFFIC				
	SIGNING	LS	\$3,000	1	\$3,000
	STRIPING	LF	\$10	500	\$5,000
	CURBS	LF	\$120	400	\$48,000
	SIDEWALKS	SY	\$200	300	\$60,000
	ADJUST MANHOLE OR CATCH BASIN	EA	\$1,000	2	\$2,000
	TRAFFIC CONTROL (15%)	LS	\$119,000	1	\$119,000
6	OTHER ITEMS				
	SURVEYING (3%)	LS	\$24,000	1	\$24,000
	SPECIAL ITEMS (PLANTER BOXES)	EA	\$500	-	\$0

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PLANNING LEVEL OPINION OF COST SUMMARY

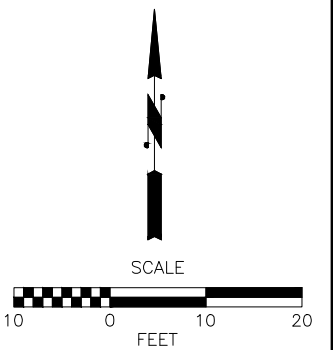
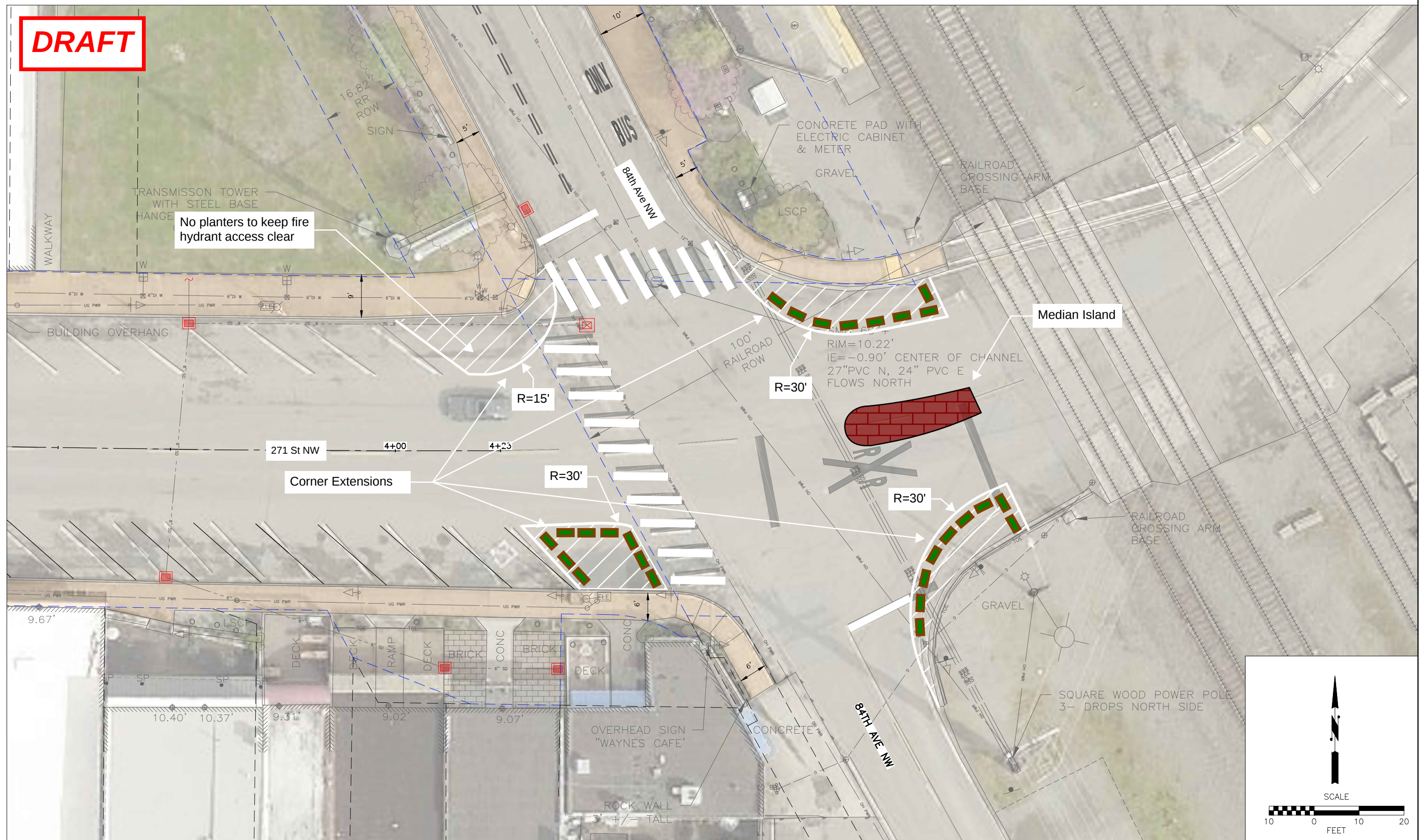
Project Description: Twin City Mile (Traffic Calming) - Raised Intersection Alt.		Client: City of Stanwood			
Corridor Section: 271st Street NW and 84th Avenue NW		Date: 9/11/2023			
Location: Stanwood, WA		Date of Cost Index: 2023			
7	SUBTOTAL (ITEMS 1 THRU 6)				\$947,150
8	MOBILIZATION (10%) 10% OF ITEM 7	EST	\$94,800	1	\$94,800
9	CONSTRUCTION SUBTOTAL (ITEMS 7 & 8)				\$1,041,950
10	SALES TAX (below-the-line)	EST	\$0	1	\$0
11	AGREEMENTS (Utilities, WSP, etc.)	EST	\$0	1	\$0
12	SUBTOTAL (ITEMS 9 THRU 11)				\$1,041,950
13	CONTINGENCY (30% OF ITEM 12)	EST	\$312,600	1	\$312,600
14	CONSTRUCTION SUBTOTAL (ITEMS 12 & 13)				\$1,354,550
15	FUTURE CN COST BASED ON INFLATION RATE	Inflation 7%	Const. Year 2025	Cost Index 2023	Future Cost \$1,551,000
16	CONSTRUCTION ADMINISTRATION CONSTRUCTION ENGINEERING (15% OF ITEM 14)	EST	\$203,200	1	\$203,200
17	FUTURE CN ADMIN COST BASED ON INFLATION RATE	Inflation 5%	Const. Year 2025	Cost Index 2023	Future Cost \$225,000
III.	PRELIMINARY WORK				
	PRELIMINARY ENGINEERING (10.0% OF ITEM 14)	EST	\$135,500	1	\$135,500
	ENVIRONMENTAL PERMITS/DOCUMENTS	EST	\$15,000	1	\$15,000
	FUTURE PE COST BASED ON INFLATION RATE	Inflation 5%	Design Year 2024	Cost Index 2023	Future Cost \$159,000
IV.	TOTAL ESTIMATED COST (ITEMS I, 15, 17, & III)				
	TOTAL PROJECT COST (BASED ON INFLATION RATE)				\$2,048,000

SUMMARY (Including inflation)

Right of Way	\$113,000
Design Engineering, Administration, Environmental Permitting (Item III)	\$159,000
Construction Contract (Incl. Administration)	\$1,776,000

The above opinion of cost is a planning level estimate only. It is based on best available information and scope at the time, not on the results of a detailed engineering study, and is supplied as a budgeting guide only. Perteet Inc. does not guarantee or warrant the accuracy of this planning level estimate.

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PLANNING LEVEL OPINION OF COST SUMMARY

Project Description: Twin City Mile (Traffic Calming) - Corner Extensions, Median Alt.	Client: City of Stanwood
Corridor Section: 271st Street NW and 84th Avenue NW	Date: 9/11/2023
Location: Stanwood, WA	Date of Cost Index: 2023
	Calculated By/Entered By: BMS
	Checked By: BMP

Twin City Mile (Traffic Calming) - Corner Extensions, Median Alt.

		ITEM	UNIT	ESTIMATED COST	UNIT QTY	COST
I.		RIGHT OF WAY				
		RIGHT OF WAY TOTAL				\$0
		FUTURE ROW COST BASED ON INFLATION RATE	Inflation 2%	ROW Year 2024	Cost Index 2023	Future Cost \$0
II.		CONSTRUCTION				
1		PREPARATION/GRADING/DRAINAGE				
	1.1	PREPARATION				
		REMOVING EXISTING PAVEMENT	SY	\$80	30	\$2,400
	1.2	EARTHWORK				
		ROADWAY EXCAVATION INCL. HAUL	CY	\$100	5	\$500
	1.3	STORMWATER MITIGATION				
	1.4	STORM SEWER				
2		STRUCTURE				
3		SURFACING				
		DECORATIVE CEMENT CONCRETE PAVEMENT	SY	\$500	30	\$15,000
		CRUSHED SURFACING	TON	\$120	10	\$1,200
4		ROADSIDE DEVELOPMENT				
		TEMP. WATER POLLUTION & EROSION CONTROL (2%)	LS	\$2,000	1	\$2,000
5		TRAFFIC				
		SIGNING	LS	\$4,000	1	\$4,000
		STRIPING	LF	\$10	1,000	\$10,000
		CURBS	LF	\$120	90	\$10,800
		TRAFFIC CONTROL (15%)	LS	\$9,000	1	\$9,000
6		OTHER ITEMS				
		SURVEYING (3%)	LS	\$2,000	1	\$2,000
		SPECIAL ITEMS (PLANTER BOXES)	EA	\$500	26	\$13,000
7		SUBTOTAL (ITEMS 1 THRU 6)				\$69,900
8		MOBILIZATION (10%)				
		10% OF ITEM 7	EST	\$7,000	1	\$7,000

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PLANNING LEVEL OPINION OF COST SUMMARY

Project Description: Twin City Mile (Traffic Calming) - Corner Extensions, Median Alt.		Client: City of Stanwood			
Corridor Section: 271st Street NW and 84th Avenue NW		Date: 9/11/2023			
Location: Stanwood, WA		Date of Cost Index: 2023			
9	CONSTRUCTION SUBTOTAL (ITEMS 7 & 8)				\$76,900
10	SALES TAX (below-the-line)	EST	\$0	1	\$0
11	AGREEMENTS (Utilities, WSP, etc.)	EST	\$0	1	\$0
12	SUBTOTAL (ITEMS 9 THRU 11)				\$76,900
13	CONTINGENCY (30% OF ITEM 12)	EST	\$23,100	1	\$23,100
14	CONSTRUCTION SUBTOTAL (ITEMS 12 & 13)				\$100,000
15	FUTURE CN COST BASED ON INFLATION RATE	Inflation 7%	Const. Year 2025	Cost Index 2023	Future Cost \$115,000
16	CONSTRUCTION ADMINISTRATION CONSTRUCTION ENGINEERING (15% OF ITEM 14)	EST	\$15,000	1	\$15,000
17	FUTURE CN ADMIN COST BASED ON INFLATION RATE	Inflation 5%	Const. Year 2025	Cost Index 2023	Future Cost \$17,000
III.	PRELIMINARY WORK				
	PRELIMINARY ENGINEERING (10.0% OF ITEM 14)	EST	\$10,000	1	\$10,000
	ENVIRONMENTAL PERMITS/DOCUMENTS	EST	\$0	1	\$0
	FUTURE PE COST BASED ON INFLATION RATE	Inflation 5%	Design Year 2024	Cost Index 2023	Future Cost \$11,000
IV.	TOTAL ESTIMATED COST (ITEMS I, 15, 17, & III)				
	TOTAL PROJECT COST (BASED ON INFLATION RATE)				\$143,000

SUMMARY (Including inflation)

Right of Way	\$0
Design Engineering, Administration, Environmental Permitting (Item III)	\$11,000
Construction Contract (Incl. Administration)	\$132,000

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