



Downtown Nanaimo Transit Exchange Study

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Project #: 2452.B01



Prepared by WATT Consulting Group
For the Regional District of Nanaimo and BC Transit

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1.0 INTRODUCTION

Watt Consulting Group (“WATT”) was retained by the Regional District of Nanaimo (RDN) to conduct a transit exchange study for downtown Nanaimo to serve the RDN Transit System. This work was conducted in collaboration with BC Transit, with support also provided by City of Nanaimo staff.

The study objective was to confirm functional requirements for a downtown Nanaimo exchange, evaluate potential site options, recommend a preferred location, and develop the conceptual design with Class “D” cost estimates.

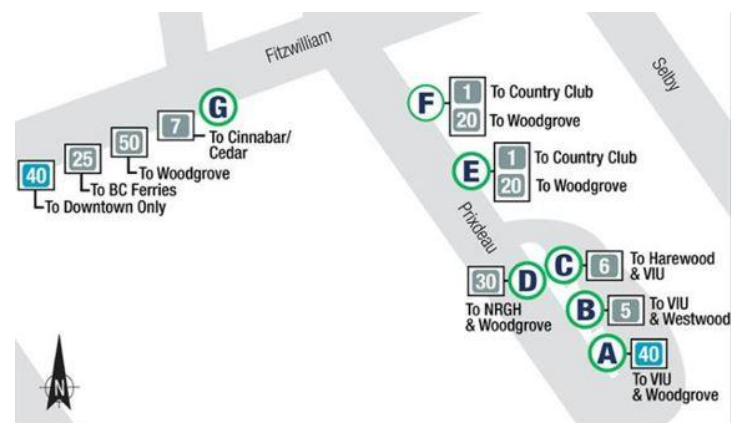
2.0 BACKGROUND

2.1 EXISTING EXCHANGE AND PRIMARY FUNCTIONS

The Prideaux Street Exchange currently acts as the Regional District of Nanaimo Transit System’s central transit exchange. It is located within the City of Nanaimo’s downtown and is served by nine routes. As shown in the diagram below, there are ten bus bays at the exchange; four on-street platforms on northbound Prideaux Street and six platforms in the exchange.

Finding a suitable long term downtown exchange location has been an ongoing transit system issue since the early 2000’s when the system lost its original exchange site on the east side of what is now Port Place Shopping Centre. The Prideaux Street Exchange was implemented as a temporary exchange site in 2005, when the previous temporary on-street location in the vicinity of Gordon Street and Museum Way was impacted by the construction of the Vancouver Island Conference Centre. The Prideaux site is leased from the City of Nanaimo and its term has expired.

EXISTING PRIDEAUX STREET EXCHANGE



Graphic source: BC Transit

A summary of routes and bus bay allocations for the existing Prideaux Street Exchange is presented in **Appendix A**, with the following providing an overview of location and primary functions.

The existing Prideaux Street Exchange serves a number of functions:

- It is the **terminus point** for for eight of the nine routes that serve it, which means that it provides a key function for the system as a recovery and layover point: space is required for this. While it has far fewer vehicles starting or ending at this location than other points

in the system, there is some **garage travel** time between the RDN Transit operations and maintenance facility (RDN Transit Centre) and this destination.

- For passengers, it also serves the role as a **connection point**, particularly between routes serving Vancouver Island University and Cedar/Cinnabar and those serving destinations to the north.

Besides these characteristics, ideally, the Downtown Exchange would also serve a role as the stop that is the **gateway to other downtown destinations**. However, while it does provide access to the Old City Quarter, many passengers use other stops and routes to access downtown Nanaimo. In particular, a review of downtown Nanaimo ridership undertaken as part of a previous downtown exchange alternate site evaluation¹ determined that after the Prideaux Exchange, the top three busiest bus stops were:

- Northbound Front Street at Esplanade
- Eastbound Bastion Street at Skinner Street
- Eastbound Victoria Crescent at Albert Street

A number of existing routes have loops and somewhat circuitous routing to serve these downtown stops. Therefore, a new Downtown Nanaimo Exchange should consider relation to these stops and opportunity for it to serve a downtown gateway role in addition to its other connection point and layover functions.

Key Conclusions:

- When evaluating options for the Downtown Nanaimo Exchange, the weighting should be relatively balanced between considerations of layover capacity/operational function, ease of connection and proximity to key downtown destinations.

2.2 FUTURE OUTLOOK AND REQUIREMENTS

Formally approved by both the RDN and BC Transit Boards in 2014, the Regional District of Nanaimo Transit Future Plan² is the main guiding strategic document for the transit system. The Transit Future Plan (TFP) outlines the system's future network and hierarchy of route types, plus includes recommendations with respect to service standards (future frequency, span of service, vehicle type, etc.) and infrastructure requirements.

The TFP identifies the need for a 12-bay downtown transit exchange to support the implementation of the Transit Future Network and the overall land use strategy of the City of Nanaimo's downtown.³ The Nanaimo Transportation Master Plan (2014) outlines support for the

¹ Regional District of Nanaimo Cliff Street Transit Exchange Operational Feasibility Analysis, 2018.

² Regional District of Nanaimo Transit Future Plan (2014). Available online at: <https://bctransit.com/servlet/documents/1403641050837>

³ Ibid.

relocation of the Prideaux Street Exchange to the Assembly Wharf area (later explored as part of redevelopment of 1 Port Drive off Front Street; see below and **Section 3.1.1**), where a new exchange could form part of a multi-modal transportation hub with potential integration to other modes as well as direct access to downtown.⁴

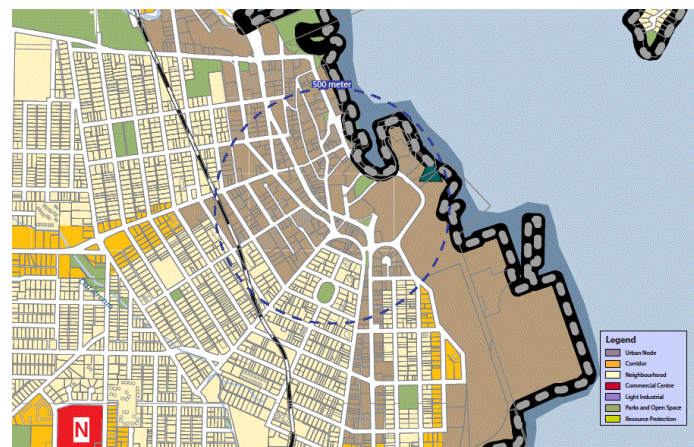
As indicated in the TFP, there is a need for a larger exchange to support future increases to service and better align the transit network to existing and future land use. Other recommendations from the RDN Board-approved Transit Future Plan include that:

- The transit exchange should be located within an active pedestrian-oriented area along the future Rapid Transit alignment that is large enough to accommodate future growth in transit services.
- Amenities at the transit exchange should include transit shelters, benches, transit customer information and cycling facilities.
- The relocation of the exchange from the existing Prideaux Street Exchange to a more central location downtown can improve service efficiency and may allow for operational savings to be used to improve service levels.

Since that time, further work undertaken by BC Transit (evaluating a potential exchange in the Assembly Wharf/Front Street area) and Watt Consulting Group (evaluating a potential Cliff Street exchange site) determined that **10 bays** was likely a feasible number that could adequately serve the system into the long term, particularly in conjunction with proposed Transit Future Network routing changes that may have fewer vehicles terminating in Downtown.

2.2.1 RELATION TO COMMUNITY PLANS, LAND USE AND ACTIVE TRANSPORTATION

The Downtown Centre is identified as one of the five Urban Nodes in the City of Nanaimo's Official Community Plan (OCP).⁵ Urban Nodes are planned to be developed as "complete communities" providing a broad range of higher density residential, commercial, community, and open space uses. The Downtown Centre Urban Node already encompasses a range of services from retail shops to historical landmarks and the OCP supports this continued commercial and residential development, which in turn is supportive of transit.



Excerpt from City of Nanaimo Official Community Plan showing future land use. A 500 metre 5-10 minute walk radius of the roughly geographic centre of downtown Nanaimo is also shown.

⁵ City of Nanaimo Official Community Plan: <https://www.nanaimo.ca/property-development/community-planning-land-use/community-plans/official-community-plan>

In terms of mobility, the OCP identifies the continued development of transit, bike routes, and pedestrian friendly routes that will eventually reduce motor vehicle trips to, from, and within the Downtown Centre. Further, the Nanaimo Transportation Master Plan⁶ includes the following proposed projects for the Downtown Centre: “a new Downtown Transit Exchange, cycling facilities, and streetscape improvements along Terminal Ave and Front St that will help make Downtown a more successful mobility hub.” In addition to these modes, the OCP states that the new Downtown Exchange site should also consider connecting pedestrian traffic from the Gabriola Island ferry, seaplanes, water taxis and other passenger ferry services.

The medium-long term cycling network shows multiple cycling corridors and treatments, as shown at right.

Other longer term planning and community aspirations guiding consideration of location of a Downtown Exchange site include:

- **Terminal / Nicol Reimagined⁷** which provides a vision of how this corridor could be evolved in order to transition from a high mobility vehicle corridor to something more typical of a downtown street, including consideration of opportunities to slow traffic and improve the pedestrian realm and sense of place.
- **Downtown Nanaimo Urban Design Plan and Guidelines⁸** which also provide guidance on public realm design and attributes for the downtown. These should be referenced as part of any future exchange work in the precinct, particularly in relation to the elements relating to “convenient, comfortable and safe streetscapes.”



Excerpt from City of Nanaimo Transportation Master Plan showing medium-long term cycling network.

Key Conclusions:

- The need for a new and more centralized exchange in downtown Nanaimo has been identified in the RDN Transit System’s adopted Transit Future Plan and is supported by relevant community land use and transportation plans.
- There is also a unique opportunity to have the new exchange support the community’s desire for a more walkable and vibrant downtown.

⁶ City of Nanaimo Transportation Master Plan: <https://www.nanaimo.ca/your-government/projects/projects-detail/nanaimo-transportation-master-plan>

⁷ Terminal / Nicol Reimagined: <http://tnreimagined.ca/>

⁸ <https://www.nanaimo.ca/docs/property-development/development-applications/downtown-urban-design-plan-and-guidelines.pdf>

2.3 EXISTING EXCHANGE ISSUES AND OPPORTUNITIES

Aside from the existing Prideaux Street Exchange's impermanence and expired lease, its main functional challenges are its configuration and location:

- Due to the spacing between the on-street bays on Fitzwilliam Street and the bays within the exchange facility, transferring transit customers may be required to walk up to 160m and cross three roadways where buses may be manoeuvring.
- As indicated in the Regional District of Nanaimo Transit Future Plan (TFP), bus routings to and from the Prideaux Street Exchange are lengthy and time consuming, reducing the efficiency of transit services.
- Measures taken at the existing exchange to increase its capacity by angling buses away from the curb at positions C, B and A means passengers alighting the bus at the rear doors step down to the street level rather than the curb. This angling and let down to curb impedes accessibility and may cause longer boarding times due to increased need for passengers to exit by the front door.

For all of these reasons—plus its expired lease—status quo is not an option for the site and a new Downtown Transit Exchange location is required.



The character and attributes of downtown Nanaimo's core (here, showing Commercial Street facing south toward Terminal Avenue).

3.0 NORTH NANAIMO – EVALUATION OF ALTERNATE SITES

3.1.1 ALTERNATIVE SITES CONSIDERED

A search for an alternate downtown exchange site has been an ongoing system issue since the early 2000's and certainly since the Prideaux Street “temporary” Exchange was put into service for what was supposed to be a three year lease. A number of studies over the years have examined other downtown exchange possibilities, including:

- A **2006** exchange analysis was completed by Boulevard Transportation Group (now Watt Consulting Group) on behalf of the RDN that examined 14 sites and which recommended two: an off-street solution on Front Street south of the Gabriola Ferry terminal and an on-street solution on Front Street just north of the terminal (which would now not meet capacity needs).
- Extensive design and planning work was undertaken in **2016/17** by the RDN, City of Nanaimo and BC Transit to 1 Port Drive, an off-street lot on Front Street in the Assembly Wharf area and adjacent to that identified in 2006. Movement forward on that location has been postponed at present since it was part of an unsuccessful referendum to construct an event centre on the property.
- A **February 2018** transit exchange feasibility analysis undertaken by Watt Consulting Group on behalf of the RDN for a property on Cliff Street.

Beyond these studies, there has also been ongoing efforts by both the RDN and the City to consider and identify suitable parcels of land for a potential exchange as they came available for redevelopment.

Given the amount of previous work done to identify and consider other sites, the RDN and BC Transit requested that this study focus on new additional alternate sites within the downtown Nanaimo core. These sites concentrate on vacant off-street parcels or on-street locations that relate closely to existing high-traffic transit stops and/or the future transit network.

The **map on the following page** shows these additional sites, as well as their relation to the many other sites previously assessed.

Downtown Nanaimo Alternate Transit Exchange Locations Considered 2006-2018



LEGEND

Existing Exchange [Black dashed box]	2006 Sites 7 Port Place Mall 8 Bow-tie 9 West Side Terminal Ave 10 N.E Corner Terminal / Front 11 Adjacent Wendy's 12 Off-Street Franklyn / Wesley 13 Off-Street Wallace / Wentworth 14 On-Street / City Hall 15 Off-Street - 400 Fitzwilliam 16 On-Street Wallace 17 Terminal Ave - Under the Overpass 18 Off-Street Milton / Hecates
2018 Sites 1 A&B Sound 2 "ACME" 3 Front Street 4 Comox Road	
2017/2018 Sites 5 Cliff Street	
2016 Sites 6 Front Street (Multiple Designs)	

The new alternate sites that were there evaluated as part to this study were as follows:

1. **“A & B Sound” Alternate Site** – located on the southwest corner of Commercial Street at Terminal Avenue, between Terminal Avenue and Wallace Street.
2. **“ACME” Alternate Site** – located on the southeast corner of Commercial Street at Terminal Avenue and backing onto China Steps.
3. **Front Street Alternate Site** – located on Front Street, north of the intersection of Esplanade and Front Street, in the vicinity of the existing pair of bus stops which serve Harbour Mall and the Gabriola Island ferry.
4. **Comox Road Alternate Site** – located on Comox Road between the Island Highway and Cliff Street. An outcome of recent analysis of an alternate exchange site on Cliff Street, Comox Road was examined as a potential layover area since east of Terminal Avenue it has one lane in the westbound direction and two in eastbound direction, with the second lane terminating as a right-turn-only lane at Chapel Street. A preliminary examination of recent traffic volume data indicated that this segment of Comox Road could operate sufficiently with one through lane in each direction, meaning that it could be potentially reconfigured to accommodate 2-4 transit layover positions.

3.1.2 FURTHER EVALUATION AND CONSOLIDATION OF ALTERNATE SITES

An iterative evaluation and design process was used to consider the above new alternate sites, including design and analysis of different roadway configurations on Terminal Avenue, Commercial Street, Front Street and Comox Road.

This was further influenced by perspective provided by City of Nanaimo staff that as part of future downtown Nanaimo transportation planning the following changes may be considered:

- The closure of Commercial Street north of Terminal Avenue to vehicle traffic to create a pedestrian street.
- The realignment of Albert Street to connect to Gordon Street, roughly in line with China Steps. This realignment would also therefore make it possible to consider consolidating the “A&B Sound” and “ACME” properties.

While these potential changes have in no way been formally confirmed and are still in the process of being studied further, they and the iterative design process undertaken consolidated the alternate site options into two primary locations moved forward for further design:

- **Terminal Avenue Transit Exchange** which examined two design options centered on the intersection of Terminal Avenue at Commercial Street. **Option A** uses property acquisition on the A&B Sound and ACME sites to widen Terminal Avenue to create bus bays, while **Option B** stops transit vehicles within the outer Terminal Avenue lanes.
- **On-Street Front Street Exchange With Comox Road Layover** which considered the option of expanding the existing on-street Front Street bus positions and augmenting them with longer term layover positions on Comox Road.

4.0 HIGH-LEVEL DESIGNS AND COSTS: DOWNTOWN NANAIMO

The following sections provide an overview of routing considerations, conceptual designs and Class “D” cost estimates for Downtown Nanaimo Exchange options. Full size designs of the sites are presented in **Appendix C** and cost estimate details in **Appendix D**.

4.1 ROUTING CONSIDERATIONS

In order to further develop and evaluate exchange design options, the design of routes accessing the exchange and the entirety of downtown needed to be considered. In consultation with BC Transit and RDN staff, the following service restructuring assumptions were used when developing alternate exchange designs and how a reconfigured system might evolve to serve them in concert with the Transit Future Plan:

- **Through route and/or interline as much service as possible to serve Front Street or Terminal Avenue in both directions.** Currently many routes duplicate service on Front Street or operate in one-way loops to serve key higher ridership stops. Many also terminate in the downtown (presently at Prideaux Street Exchange).

In order to reduce the number of layover positions required and create an easier to understand system, it is recommended that in tandem with a new downtown Transit Exchange as many routes as possible be joined together so that they operate *through* downtown instead of terminating there. Joining routes could be done either as scheduled “interlines,” where the bus serving one route regularly becomes another at its terminus (as is currently the case with RDN routes 7 and 50), or by joining them together in a single route. Based on current and future frequencies, likely pairings might include:

- Route 20 and 1, whereby one would loop around to serve the full length of Front Street in both directions and the other would “meet” that tail end routing via Terminal Avenue.
- Route 5 and/or 6 with route 30.
- Route 7 with route 50.
- **Maximize layover time at the outer ends of the routes.** In tandem with restructuring service to make more consistent use of interlines through downtown, service would be rescheduled to shift the bulk of layover to the ends of the route away from downtown. These two changes together would then minimize the amount of layover time and therefore layover space/bus bays required downtown.
- **Eliminate the Existing 40 VIU Express /Woodgrove Downtown Loop.** Route 40 currently operates in a loop via Wallace Street, Victoria Crescent, Esplanade, Front Street and Bastion Street. As the system’s main Frequent Transit line, to improve system legibility this route should ideally operate in both directions along the corridors it serves and terminate at the Downtown Exchange.

These assumptions were suggestions used for the purpose of this Study. Transit planning work underway in the system may recommend other approaches and solutions.

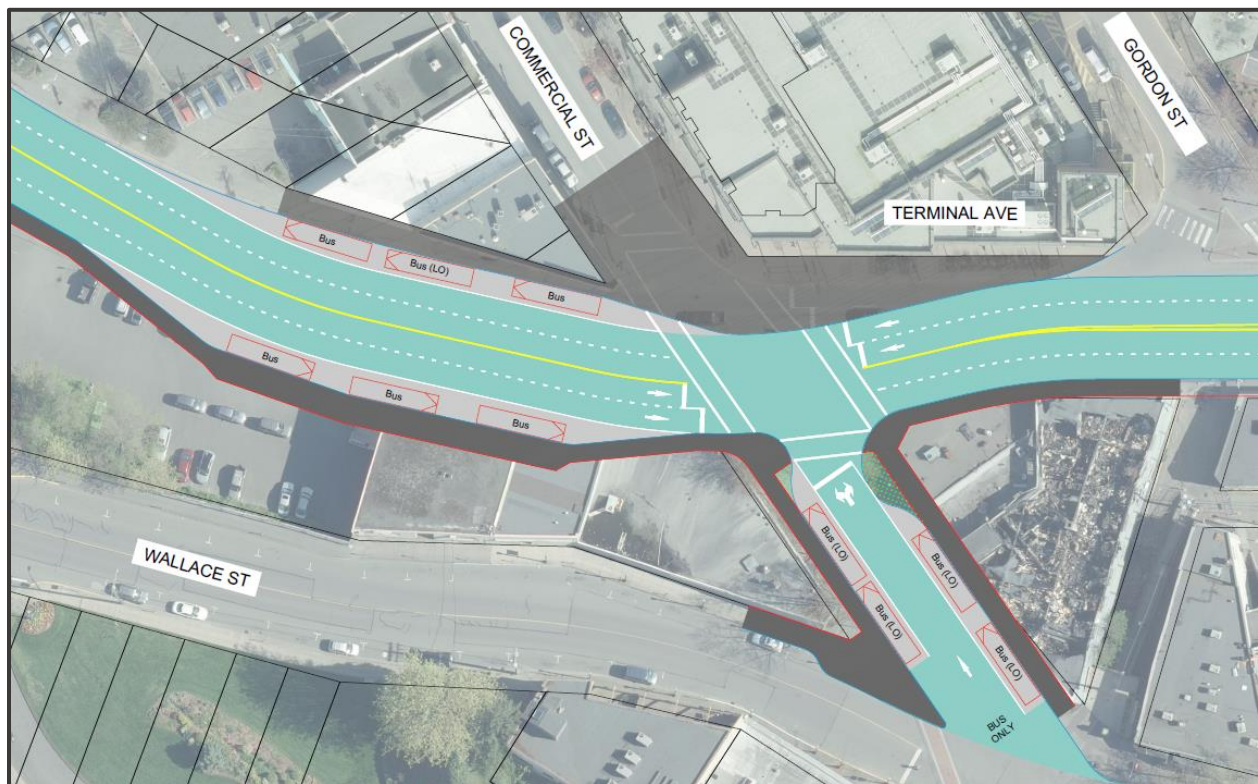
4.2 TERMINAL AVENUE TRANSIT EXCHANGE OPTION A – WITH BUS BAYS

4.2.1 DESIGN OVERVIEW, OBJECTIVES AND FEATURES

The conceptual design for the Terminal Avenue Transit Exchange Option A – with Bus Bays is shown in the follow figure and in **Appendix C**. The exchange supports three eastbound and three westbound bus bay pull-out positions on Terminal Avenue, and four layover positions on Commercial Street south of Terminal Avenue. This Downtown Exchange design option focused on:

- Utilizing properties on the southside of Terminal Avenue to provide an Exchange facility.
- Providing bus bays along Terminal Avenue.
- Improving sidewalk connections on the northwest corner of Terminal Avenue and Commercial Street.

TERMINAL AVE EXCHANGE OPTION A - WITH BUS BAYS



Other key components and assumptions were as follows:

- Adjustments were made to the centerline of Terminal Avenue to deflect the roadway to the south to accommodate the bus bays.
- In this option, it was considered that Commercial Street north of Terminal Avenue would be closed to vehicle traffic and so a large plaza area was provided.
- To avoid providing a westbound left-turn lane on Terminal Avenue for the transit exchange, Commercial Street south of Terminal Avenue was converted to a one-way

northbound bus layover roadway. This in turn, removes some of the conflicts with the Wallace Street / Commercial Street / Victoria Crescent / Albert Street intersection.

4.2.2 DESIGN AND IMPLEMENTATION CONSIDERATIONS AND NOTES

Design and implementation considerations are as follows:

- Design assumes that the properties of 1,6, 10, and 14 Commercial Street would be attained by the RDN or City of Nanaimo for the exchange, which could be undertaken in tandem with other development on-site.
- Bike parking would be installed in plaza area and south side of Terminal Avenue.
- Remove unused signal poles and heads at Terminal Avenue / Commercial Street intersection.
- The routing consolidation discussed in **Section 4.1** would take place; buses may also use Terminal Street, Esplanade and Victoria Crescent to access bays on Commercial Street.

4.2.3 CLASS “D” COST ESTIMATES

The capital cost for the exchange is estimated at \$4.7 million. This includes a 20% contingency, 15% for engineering, and 10% for inflation. Underground storm and utilities were not designed, but costed at 30% of the Civil Works. The following additional notes are provided:

- Hard scaped area (i.e. stamped/coloured concrete) plaza area on north side of Commercial Street.

Class D cost estimate sheets are provided in **Appendix D**.



The southwest corner of Terminal Avenue at Commercial Street looking west along Terminal Avenue toward Departure Bay (left photo) and north up Commercial Street towards the core of the downtown (right photo).

4.3 TERMINAL AVE TRANSIT EXCHANGE OPTION B – IN-LINE BUS STOPS

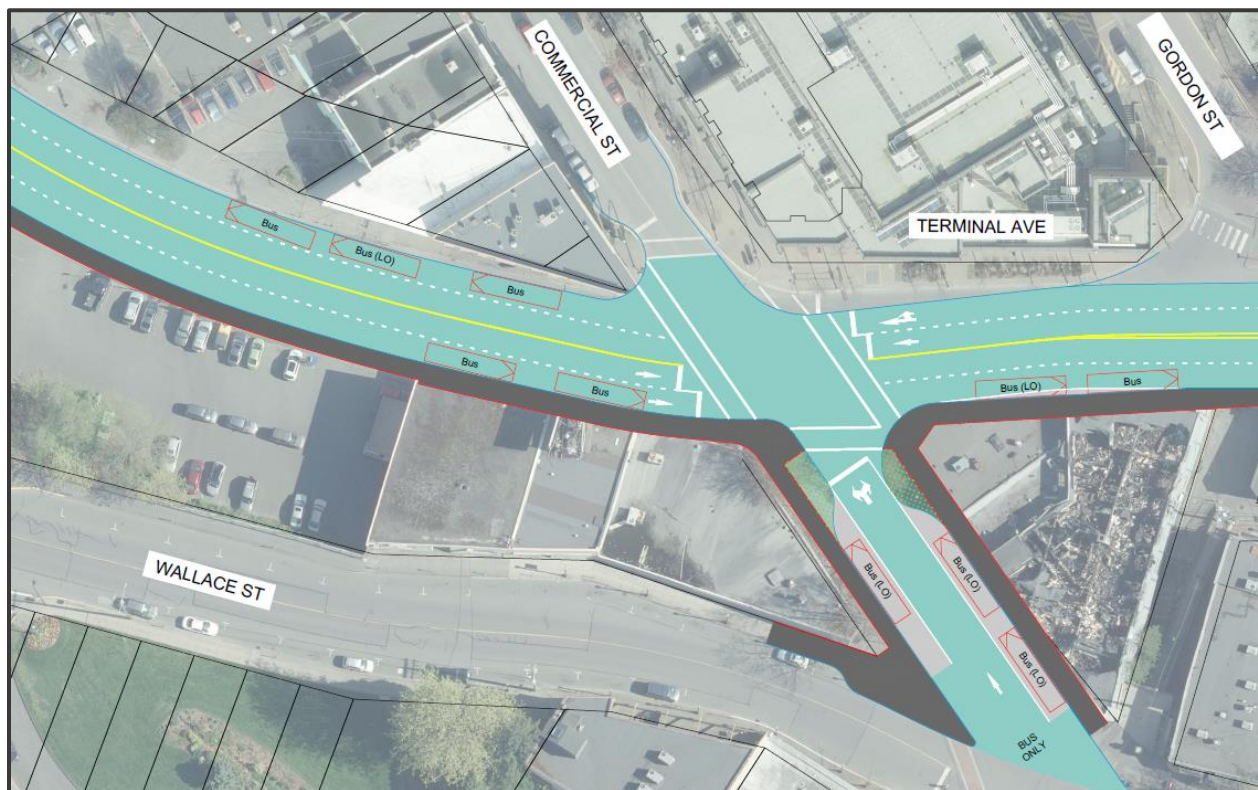
4.3.1 DESIGN OVERVIEW, OBJECTIVES AND FEATURES

The conceptual design of the Terminal Avenue Transit Exchange Option B – with In-Line Bus Stops is shown in the following figure and in **Appendix C**. The exchange design supports in-line bus stop positions along Terminal Avenue with:

- Two westbound positions plus one layover position.
- Three eastbound positions plus one layover position.
- Three northbound Commercial Street layover positions.

This alternative focused on minimizing the impact to Terminal Avenue as the roadway is within the jurisdiction of the Ministry of Transportation and Infrastructure. It also limits property impacts to adjacent lots.

TERMINAL AVE EXCHANGE OPTION B - WITH IN-LINE BUS STOPS



Other key components and assumptions were as follows:

- Minor adjustments were made to the centerline of Terminal Avenue to deflect the roadway to better accommodate pedestrian on the north side of Terminal Avenue.
- Commercial Street north of Terminal Avenue remains open to traffic, but the southside is reserved for bus-only northbound operations and layover.

- Option would have larger impacts to Terminal Avenue traffic than Option A, but less changes and land requirements.

4.3.2 DESIGN AND IMPLEMENTATION CONSIDERATIONS AND NOTES

Design and implementation considerations are as follows:

- Bike parking could be more decentralized in this option provided sufficient space can be accommodated at the northwest and southeast stop locations.
- Retain existing street trees.
- The routing consolidation discussed in **Section 4.1** would take place; buses may also use Terminal Street, Esplanade and Victoria Crescent to access bays on Commercial Street.

4.3.3 CLASS “D” COST ESTIMATES

The capital cost for the exchange is estimated at \$4.1 million. This includes a 20% contingency, 15% for engineering, and 10% for inflation. Underground storm and utilities were not designed, but costed at 30% of the Civil Works. The following additional notes are provided:

- Concrete portions of lanes to support bus weights at loading and layover positions.

Class “D” cost estimate sheets are provided in **Appendix D**.



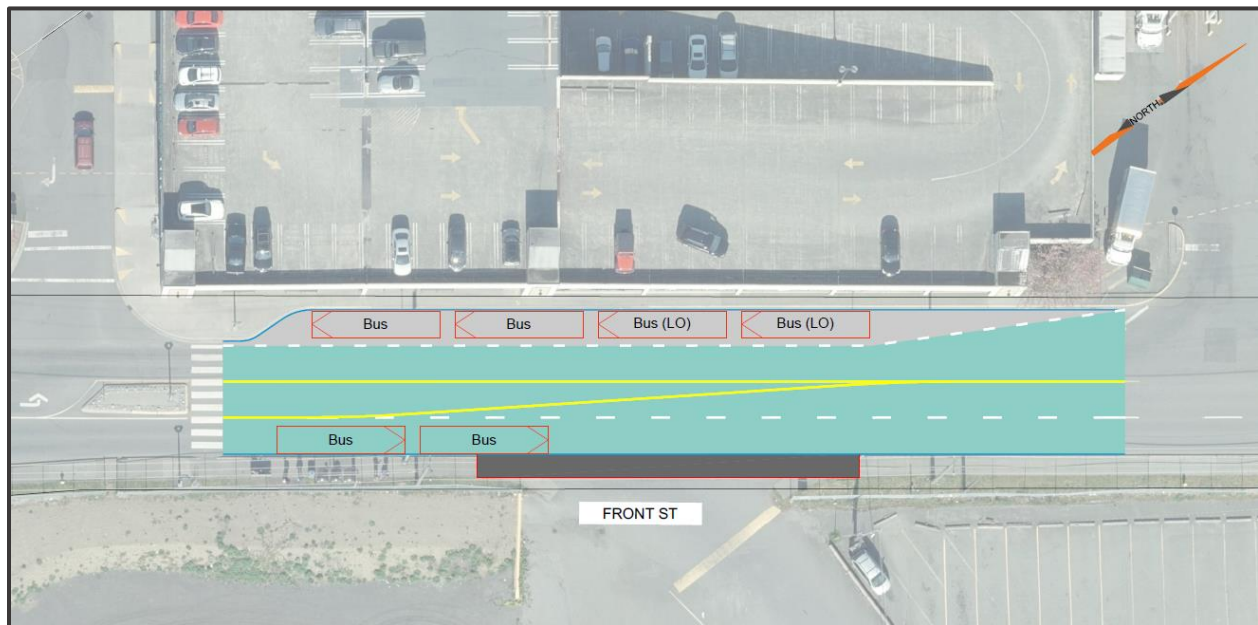
Commercial Street south of Terminal Avenue.

4.4 ON-STREET FRONT STREET EXCHANGE WITH COMOX ROAD LAYOVER

4.4.1 DESIGN OVERVIEW, OBJECTIVES AND FEATURES

The Front Street Transit Exchange option is shown below and in **Appendix C**. The conceptual design uses existing space to support additional bus stop positions and layovers with two northbound bus stops (in-line), two southbound bus bays, and two southbound layover bus bays. This option was explored as a “back up” temporary option to see what potentially could be developed as an alternative exchange solution with minimal investment in infrastructure changes.

ON-STREET FRONT STREET TRANSIT EXCHANGE OPTION



The option further reduces infrastructure needs by utilizing Comox Road for additional layover space. The Comox Road layover positions would be used either by buses “holding up” there as they entered or exited downtown prior to resuming the rest of their route/trip, or they would be accessed as “longer term layover.” In the case of longer term layover, vehicles would drop off passengers at the main Front Street stops and then route to the layover positions not-in-service via either Front Street or Terminal Avenue.

The majority of changes to Front Street include:

- Removal and replacement of pavement markings to provide additional layover space.
- A sidewalk extension over the access north of the exchange.
- Transit stop amenities such as shelters, benches, waste receptacles, etc.

The complimenting changes to Comox Road would include removal and replacement of pavement markings to provide additional layover space.

4.4.2 DESIGN AND IMPLEMENTATION CONSIDERATIONS AND NOTES

Design and implementation considerations are as follows:

- Design is minimal and does not include concrete bus bays or road structure improvements. Pedestrian space would be constrained and there is no separation between space for waiting passengers and the through area for passing pedestrians.
- Does not resolve queuing issues with BC Ferries activity from Gabriola Ferry Terminal.
- The closure of one lane on Comox Road to accommodate the layover positions looked supportable based on existing data but would need traffic count confirmation.

4.4.3 CLASS “D” COST ESTIMATES

The capital cost for the exchange is estimated at \$380,000. This includes a 20% contingency, 15% for engineering, and 10% for inflation. The design and estimate do not include underground storm or utility works.

Class “D” cost estimate sheets are provided in **Appendix D**.



Existing Front Street Exchange area (left) and potential Comox Road curbside long term layover area (right).

4.5 DETAILED EVALUATION AND CONCLUSIONS

The following provides a detailed comparison of the three exchange options, with a discussion following.

SUMMARY OF MULTI-CRITERIA EVALUATION

CRITERIA	EXCHANGE PERFORMANCE		
	Terminal Exchange Option A – With Bus Bays	Terminal Exchange Option B – With In-Line Stops	On-Street Front Street Transit Exchange with Comox Rd. Layover
Operational Turning Movements System vehicles can efficiently access all exchange bays.	–	–	✗
Layover Capacity Layover capacity meets existing and future system needs.	✓	✓	–
Overall Trip Time Trip time for routes accessing the exchange is minimized.	✓	✓	–
Garage Travel Time Travel time between the garage facility and the exchange is minimized.	–	–	–
Transit Operator Amenities Access to driver washrooms, food & beverage facilities.	✗	✗	✗
Passenger Capacity Sufficient space is available at the exchange for waiting passengers.	✓	✓	–
Passenger Accessibility Site conforms with principles of universal design and minimizes conflict with vehicles and passing pedestrian traffic.	✓	✓	✓
System Security The site is perceived as safe by transit passengers and staff and supports the functional security of passengers, staff, vehicles and infrastructure.	–	–	–
Ridership Impacts Exchange site positively impacts ridership in terms of system legibility/clarity, exchange ease of use and relation to major trip generators.	✓	✓	✓
Community Impacts Level of impact on surrounding area GP traffic and/or parking.	–	–	✓
Linkages to Other Modes of Transportation Supporting infrastructure (e.g., sidewalks, bike parking) exists to inter-connect many transportation modes better serving all users.	✓	✓	✓
Catalyst for Area Redevelopment & Revitalization Location can help catalyze the transformation and intensification of the surrounding area.	✓	✓	–
Alignment with Land Use / Transportation Plans Location aligns with recommendations of transit and community plans.	✓	✓	–
Class D Cost Estimates Anticipated level of capital cost required.	–	–	✓
Overall Operating Cost Implications Estimated level of impact against existing operating costs.	✓	✓	–

 **Meets Criteria Well**
  **Somewhat Meets Criteria**
  **Does Not Meet Criteria / Attribute**

4.5.1 DISCUSSION OF DETAILED RESULTS

The exchange options presented have been designed with two very different goals in mind and these differences show up in the evaluation.

- The two **Terminal Avenue Exchange Options** have been designed as permanent exchange locations that not only provide adequate capacity for the system and improved operational function, but which also act as a catalyst to redevelop the downtown area around them.
 - Their siting at Terminal Avenue at Commercial Street provides a way to bring more people to this part of downtown (since transit passengers are also pedestrians). In turn, the presence of transit offers a way for Terminal Avenue to look and feel more like a typical downtown street and an opportunity to improve the pedestrian and connecting cycling amenities in the vicinity.
 - Option A and Option B are relatively interchangeable as their differences depend only on the presence or absence of a pedestrian plaza (if Commercial Street north of Terminal Avenue is closed to vehicle traffic) and whether transit vehicles on Terminal Avenue are stopping in traffic or pulling into separate bays. The final evaluation of which of these might work best for the community depends on a larger discussion with citizens and stakeholders about their transportation and land use priorities. If the City truly wishes to implement the walkable vision for Downtown presented in its plans, then ultimately a hybrid option which includes both the option of transit vehicles stopping in traffic and a pedestrian plaza may be the desired option.
 - In either case, **the Terminal Avenue Exchange location presented is the preferred and recommended Downtown Exchange site in this Study. This location also appears to be superior to other past downtown exchange sites considered because it is [a] located closer to the geographic centre of downtown, [b] located directly on the Terminal Avenue alignment proposed for future Rapid Transit, [c] likely offers better opportunity to create spin off improvements to the overall pedestrian environment.**
- The **On-Street Front Street Exchange Option** does not perform as well as the Terminal Avenue Exchange Options but this is mainly due to design: it was developed as an option that could be implemented with relatively few changes to existing right-of-way or curbing. While it would never be recommended as the long term exchange option, **the On-Street Front Street Exchange Option could be considered as a solution for an interim Downtown Exchange until a more permanent one is built.**
 - It is expected that even as an interim solution, the On-Street Front Street option would offer operational savings over the existing Prideaux Street Exchange and would also enable some of the larger suggested structural changes to downtown transit routes and schedules to take place.

In terms of the detailed evaluation, the following provides notes on each item.

MULTI-CRITERIA EVALUATION NOTES

CRITERIA	NOTES
Operational Turning Movements	<ul style="list-style-type: none"> On-street exchanges in a downtown location always offer more challenges to transit vehicle manoeuvring than a spacious off-street exchange located on a community's periphery and the evaluation reflects this. The On-Street Front Street option requires additional routing to access the longer term layover positions.
Layover Capacity	<ul style="list-style-type: none"> Both of the Terminal Avenue options meet the desired 10-bay minimum; the On-Street Front Street option also does so, but at split locations.
Overall Trip Time	<ul style="list-style-type: none"> The Terminal Avenue options facilitate an overall reduction in trip time from the Prideaux Street Exchange. The On-Street Front Street option would also likely offer a reduction, but not as much as the Terminal Avenue location.
Garage Travel Time	<ul style="list-style-type: none"> Travel time to the RDN Transit Facility will likely be similar across all options and to that of the existing Prideaux Street Exchange.
Transit Operator Amenities	<ul style="list-style-type: none"> None of the designed options in this study includes a separate Transit Operator facility. It is assumed that this would be provided through partnership with adjacent businesses or development. This would need confirming.
Passenger Capacity	<ul style="list-style-type: none"> As newly designed spaces, the Terminal Avenue options provide improved capacity for waiting passengers over the On-Street Front Street option. While similar to Option B, Option A offers overall the best passenger capacity due to its bus bays and adjacent pedestrian plaza.
Passenger Accessibility	<ul style="list-style-type: none"> All options are equally accessible.
System Security	<ul style="list-style-type: none"> The sites are all currently less populated than they could be. Future security depends somewhat on surrounding development.
Ridership Impacts	<ul style="list-style-type: none"> As they could each help implement a more direct and easier to understand transit system, all options are expected to positively impact ridership. The Terminal Avenue Exchange options are expected to create higher ridership gains over time.
Community Impacts	<ul style="list-style-type: none"> Both the Terminal Avenue options impact existing traffic flow and parking (approximately eight parking spaces). The On-Street Front Street option would have minor traffic impacts and no loss of parking spaces.
Linkages to Other Modes of Transportation	<ul style="list-style-type: none"> The sites are all part of the walkable core and could be connected to further bicycle facilities.
Catalyst for Area Redevelopment & Revitalization	<ul style="list-style-type: none"> The Terminal Avenue Exchange Options would offer the best opportunities for redevelopment and revitalization.
Alignment with Land Use / Transportation Plans	<ul style="list-style-type: none"> The Terminal Avenue Exchange Options better align with long term transit and community plans.
Class D Cost Estimates	<ul style="list-style-type: none"> The On-Street Front Street option costs far less than the others but is designed as an interim solution.
Overall Operating Cost Implications	<ul style="list-style-type: none"> All options offer operating cost savings; since Terminal Avenue Option B has buses stopping in traffic, it would likely offer the greatest time savings.

5.0 OVERALL RECOMMENDATIONS

It is recommended that the Regional District of Nanaimo and its partner BC Transit pursue the implementation of one of the Terminal Avenue Exchange Options (or a hybrid thereof) as the new Downtown Nanaimo Exchange.

The implementation of a new Downtown Exchange is in keeping with the RDN Transit System's approved Transit Future Plan and would offer operating savings and improved directness of travel over the existing Prideaux Street Exchange. **The recommended new location also offers improvement over previously considered alternate exchange sites as it is close to the geographic centre of downtown, is directly on the Terminal Avenue Rapid Transit alignment suggested in the Transit Future Plan and could be implemented to help achieve the larger vision for downtown Nanaimo presented in its community plans as a vibrant, walkable community.**

As an interim measure until a permanent new exchange is built, the system may wish to consider temporary implementation of the Front Street On-Street Exchange Option with Comox Road Layover as an alternative to the Prideaux Street Exchange. This interim option would enable the system to begin restructuring routes to better and more efficiently serve downtown without requiring further land acquisition and with a relatively smaller investment in infrastructure.

APPENDIX A: EXISTING EXCHANGE DETAILED SUMMARY

The following tables provide the detailed list of existing routes and bus bay allocations for the Prideaux Street Exchange, as well as future frequency and capacity requirements for a Downtown Nanaimo Exchange based on the Regional District of Nanaimo Transit Future Plan (TFP).

EXISTING DOWNTOWN EXCHANGE SUMMARY									
Bus Bay	Route	Direction	Terminus or Midway Point?	Existing Peak Frequency		Existing Base Frequency		TFP Future Peak Frequency	
				Frequency in Minutes	Buses per Hour (Including both directions, where applicable)	Frequency in Minutes	Buses per Hour (Including both directions, where applicable)	Frequency in Minutes	Buses per Hour (Including both directions, where applicable)
A	40 VIU Express	Outbound	Terminus	15	4	15	4	7	8
B	5 Fairview	Inbound / Outbound	Terminus	40	1	70	1	15	4
C	6 Harewood	Inbound / Outbound	Terminus	30	2	70	1	15	4
D	30 NRGH	Inbound / Outbound	Terminus	15	4	35	1	15	4
E, F	1 Downtown/ Country Club	Inbound / Outbound	Terminus	20	3	30	2	15	4
	20 Hammond Bay	Inbound / Outbound	Terminus	30	2	70	1	15	4
G	7 Cinnabar / Cedar	Inbound / Outbound	Terminus	30	2	75	1	7	8
	25 Ferry Shuttle	Clockwise, Outbound only	Mid Point	90-120	1	90-120	1	30	8
	40 VIU Express	Inbound	Mid Point	15	4	60	1	7	8
	50 Downtown /Woodgrove	Inbound / Outbound	Terminus	30	2	60	1	7	8
Total Number of Buses per Peak Hour to Terminal:					25				60

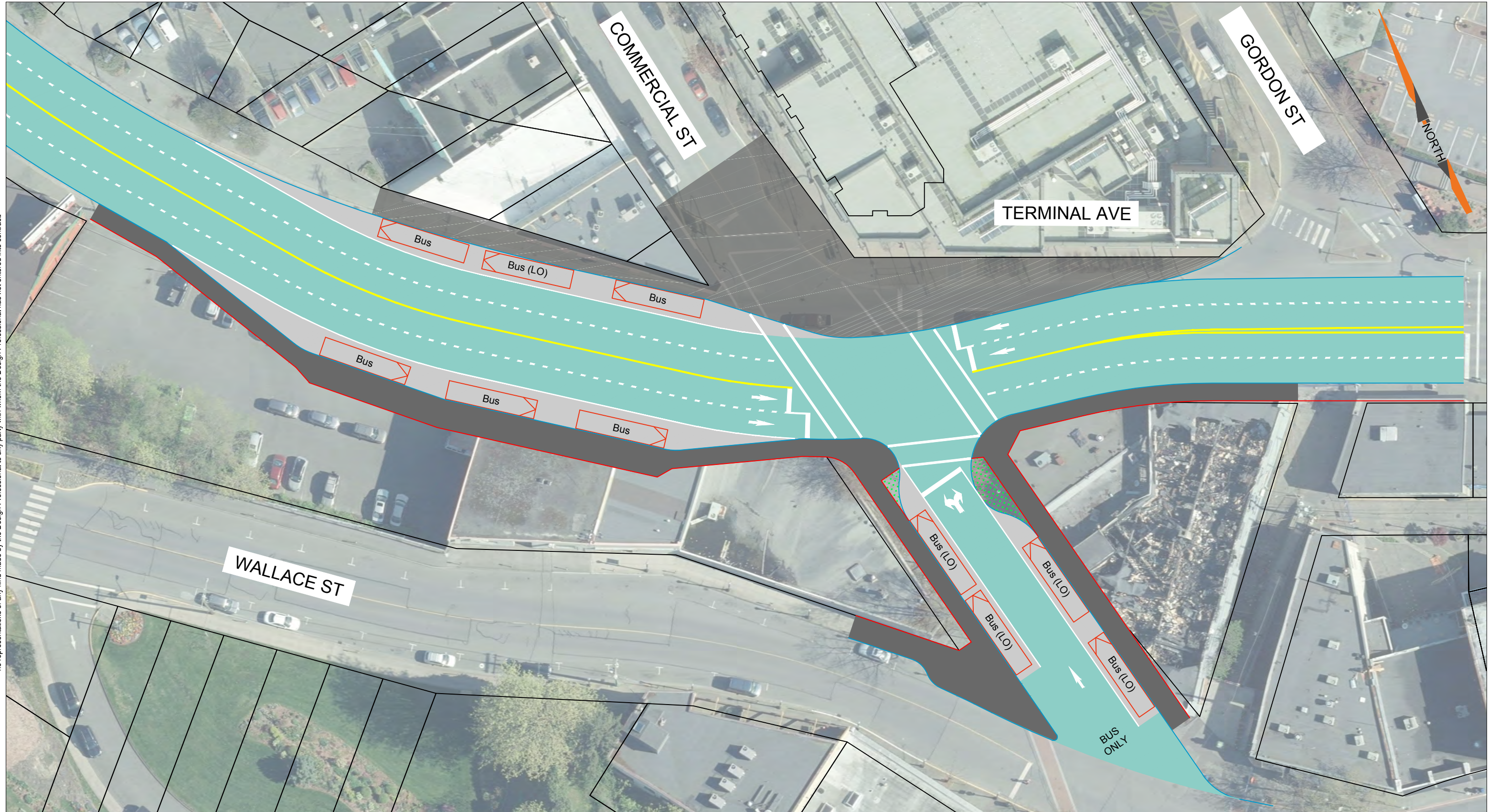
APPENDIX B: DETAILED DESCRIPTION OF TRANSIT EXCHANGE CRITERIA


The following list describes some of the key characteristics associated with a well-designed and functioning transit exchange that should be considered when evaluating a new location:

- **Capacity** – an exchange should be designed with a sufficient number of bays to meet the longer term frequency of system routes.
- **Clearly Defined Functional Areas with Adequate Loading, Unloading and Layover Capacity** – ideally bus bays should be clearly designated for specific routes and wherever possible routes serving similar destinations or directions should be aligned near each other. In cases where routes terminate, a drop off / layover area separate from bus bay loading zones can also improve operational efficiency and ease of use for passengers.
- **Minimized Conflict and Circulation** – overall terminal design should minimize vehicle circulation required and conflict with pedestrians and other vehicles. Design should also minimize road crossings required for transferring passengers.
- **Passenger Waiting Areas** – this may include shelters for weather protection, benches and seating areas for comfort, and routing and real-time transit information to provide greater certainty and route planning assistance to passengers. Lighting and recycling / garbage receptacles should also be provided.
- **Pedestrian Facilities** – wide sidewalks and crosswalks are important for minimizing conflicts / collisions between buses and pedestrians. Fencing and landscaping may also be desirable to focus pedestrian flow.
- **Multi-Modal Transportation** – provision of space for bicycle parking and storage to help facilitate cycling trips.
- **Wayfinding and Clear Linkages to Larger Site** – information should be provided at the terminal indicating pedestrian wayfinding to the surrounding area including key destinations within the downtown.
- **Catalyst for Area Redevelopment & Revitalization** – a transit exchange facility, if well designed, can help catalyze the transformation and intensification of its surrounding area. Specifically, it can create new nodes for social and economic activity and facilitate compact, mixed use, and pedestrian oriented redevelopment as residents (and employees) can directly benefit from immediate access to the transit system.

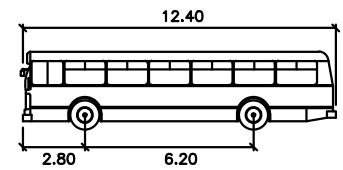
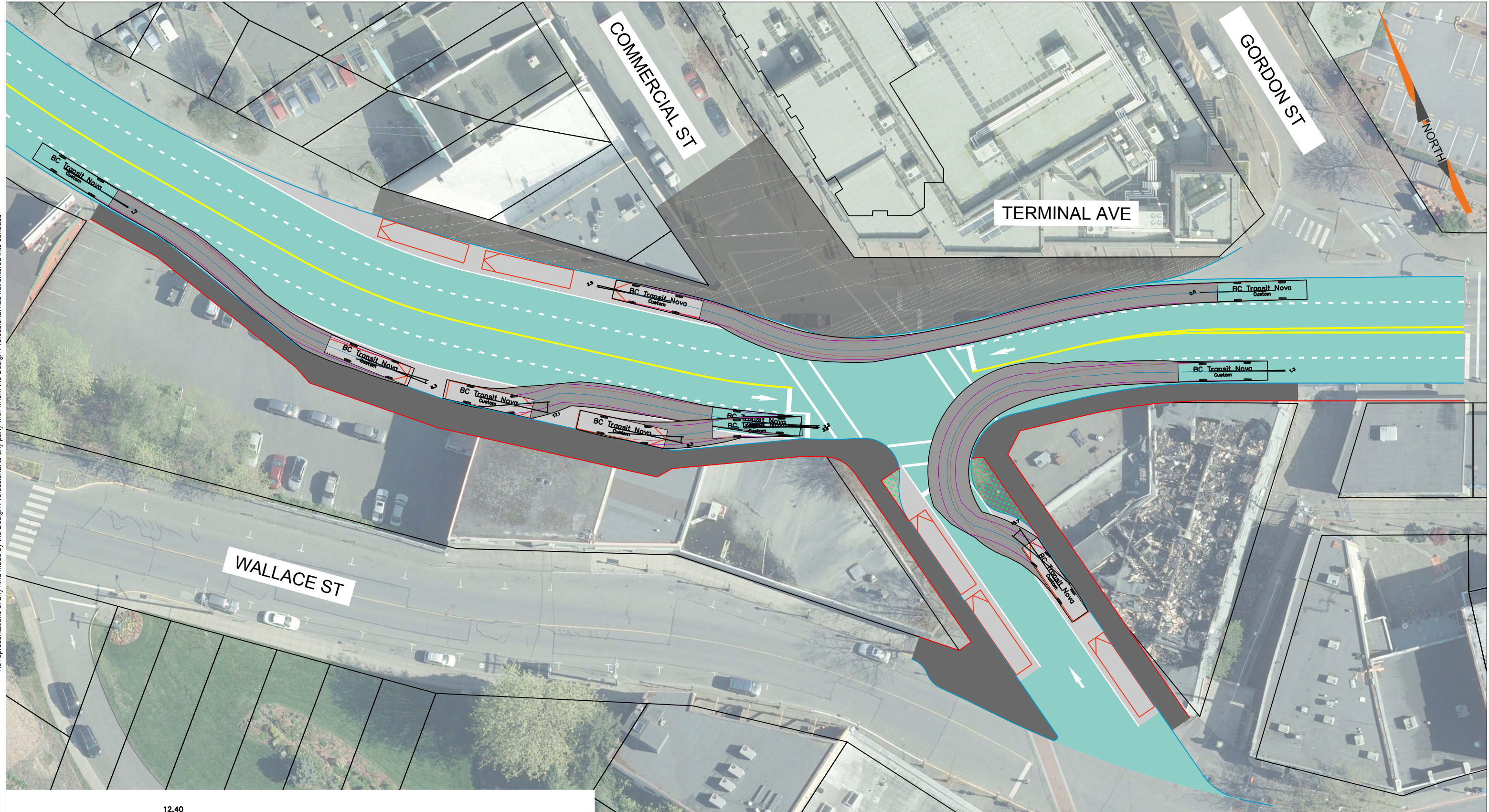
APPENDIX C: CONCEPTUAL TRANSIT EXCHANGE DESIGNS

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 PLOTTED BY: Brian Seem



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	5		DATE: JULY 26, 2018		REVISION:		
	6						 #501, 740 - Hillside Ave Victoria, BC V8B T24 T. 250.388.9877 F. 250.388.9879 www.wattconsultinggroup.com
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 PLOT DATE: 8/1/2018 10:50 AM
 PLOTTED BY: Brian Sebn




BC Transit Nova
 meters
 Width : 2.65
 Track : 2.60
 Lock to Lock Time : 6.0
 Steering Angle : 30.3

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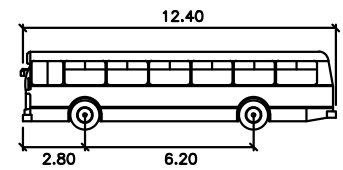
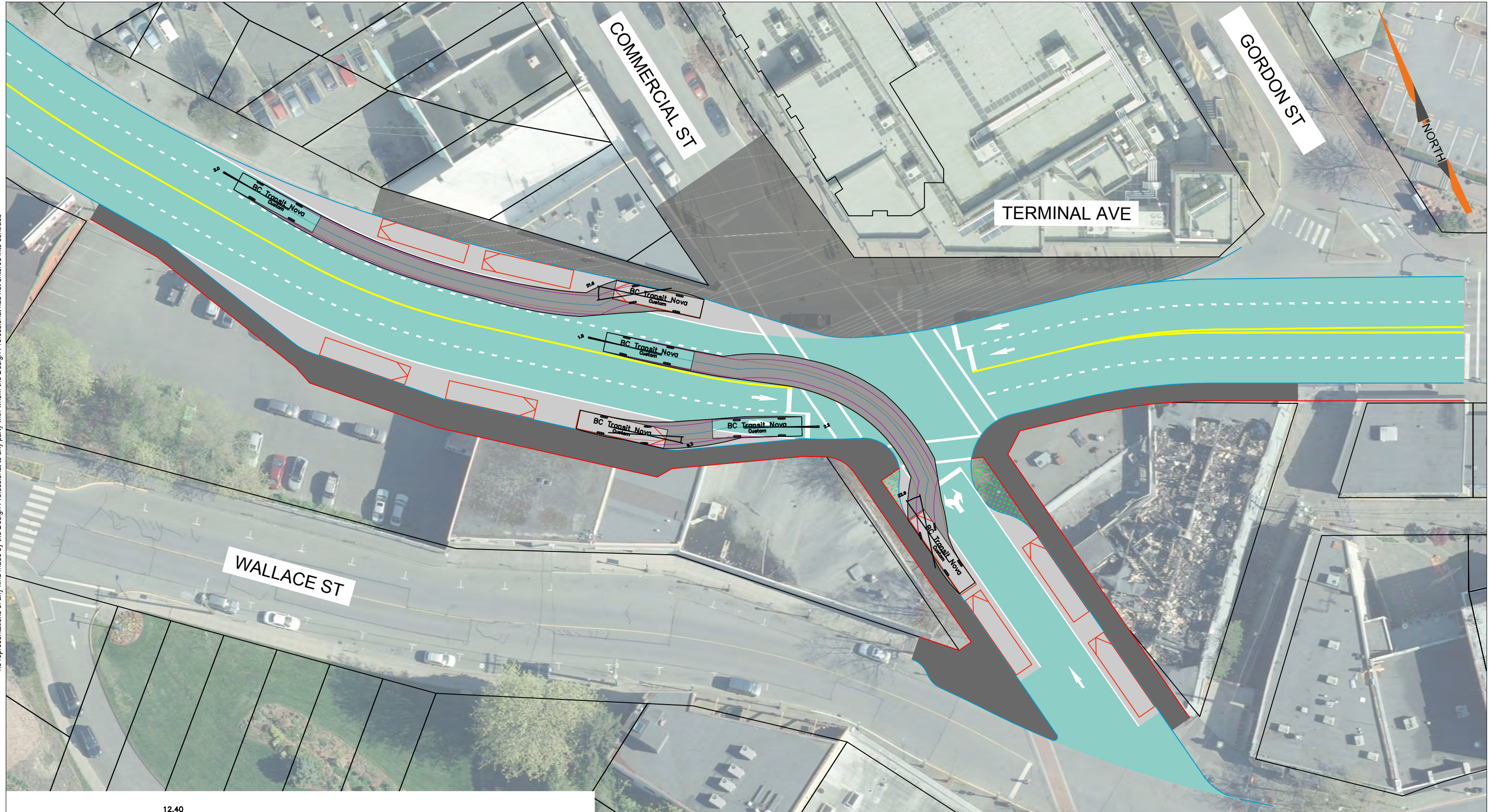
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DATE:	JULY 31, 2018		REVISION:		

TITLE: **OPTION A
 NANAIMO DOWNTOWN
 TRANSIT EXCHANGE**



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PROJECT: V:\Project Files\2452 - Downtown Nanaimo Transit Exchange Study\5 - Design\02 - Design Files (AutoCAD, C3D)\2452 - Nanaimo Downtown Transit Exchange_OptA.dwg
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 PLOTTED: Brian, Seen



BC Transit Nova
 meters
 Width : 2.65
 Track : 2.60
 Lock to Lock Time : 6.0
 Steering Angle : 30.3

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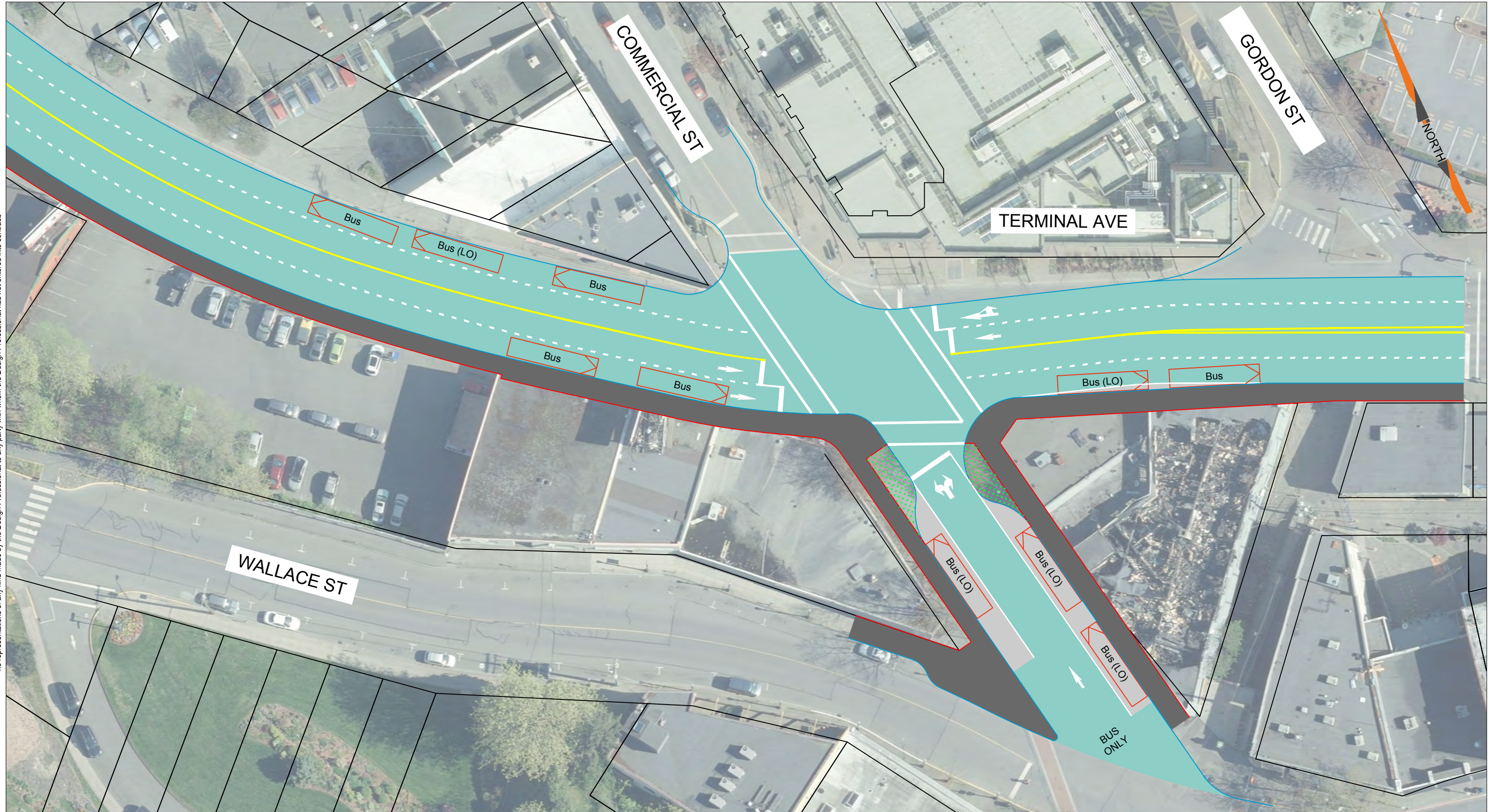
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**OPTION A
 NANAIMO DOWNTOWN
 TRANSIT EXCHANGE**




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 PLOTTED BY: Brian Seon



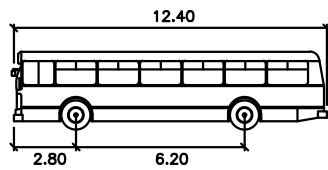
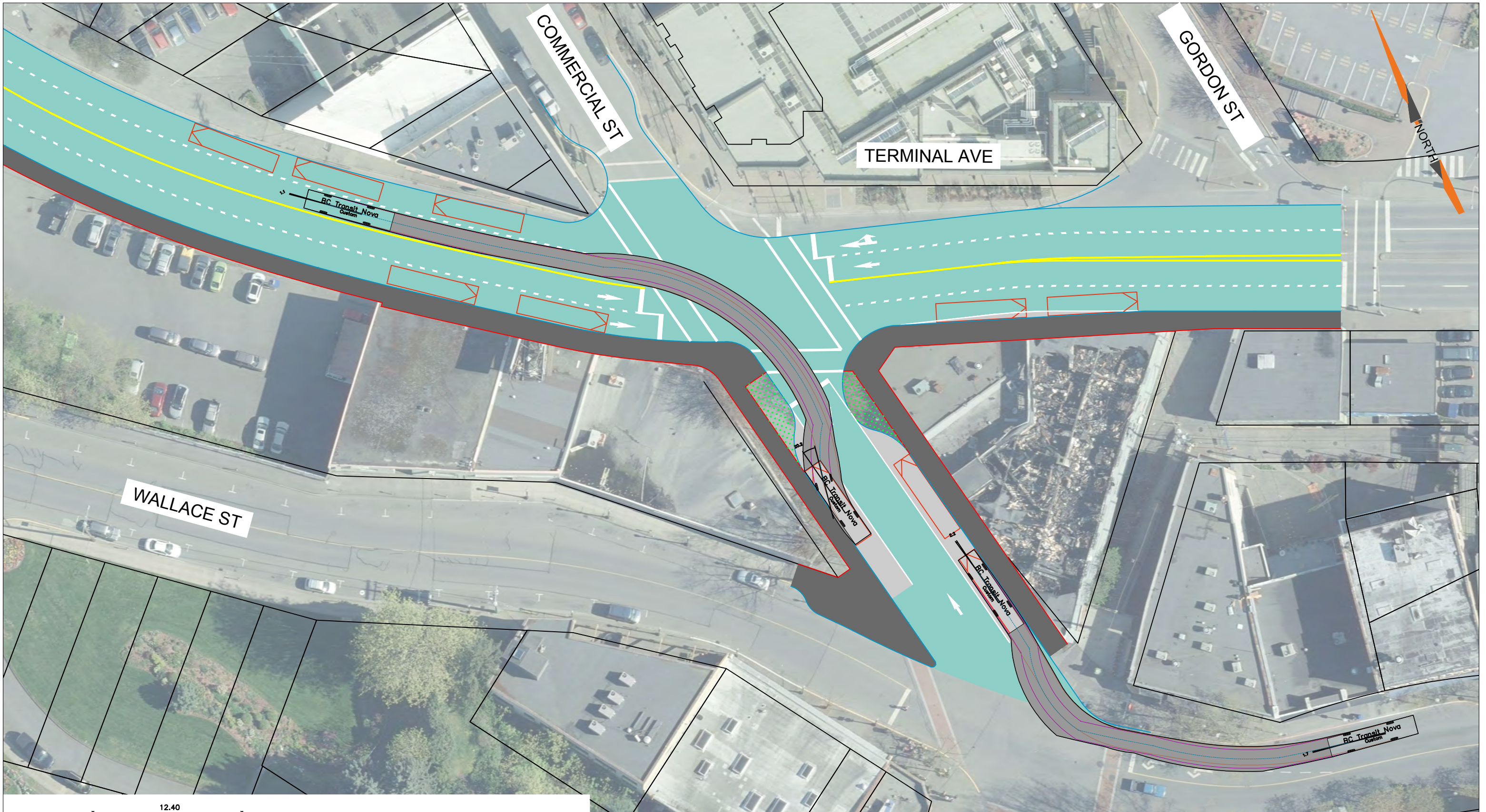
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TITLE: **OPTION B
NANAIMO DOWNTOWN
TRANSIT EXCHANGE**



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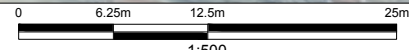
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BC Transit Nova
 meters
 Width : 2.65
 Track : 2.60
 Lock to Lock Time : 6.0
 Steering Angle : 30.3

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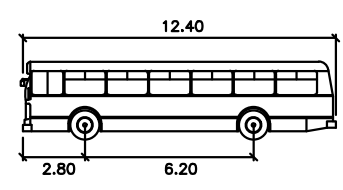
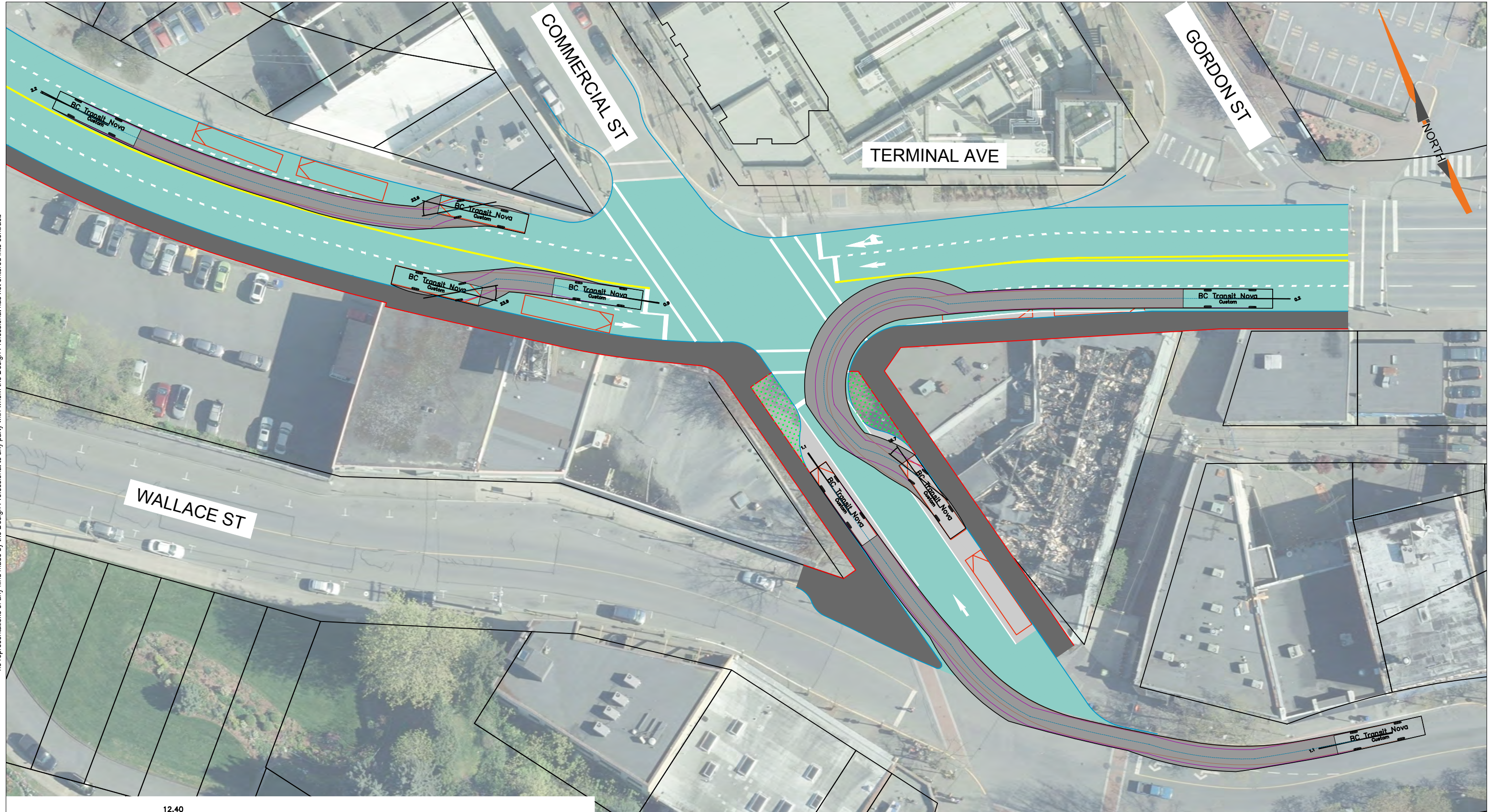
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**OPTION B
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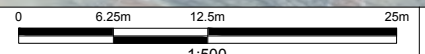
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 PLOTTED BY: Brian Soren



BC Transit Nova
 meters
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 Track : 2.60
 Lock to Lock Time : 6.0
 Steering Angle : 30.3

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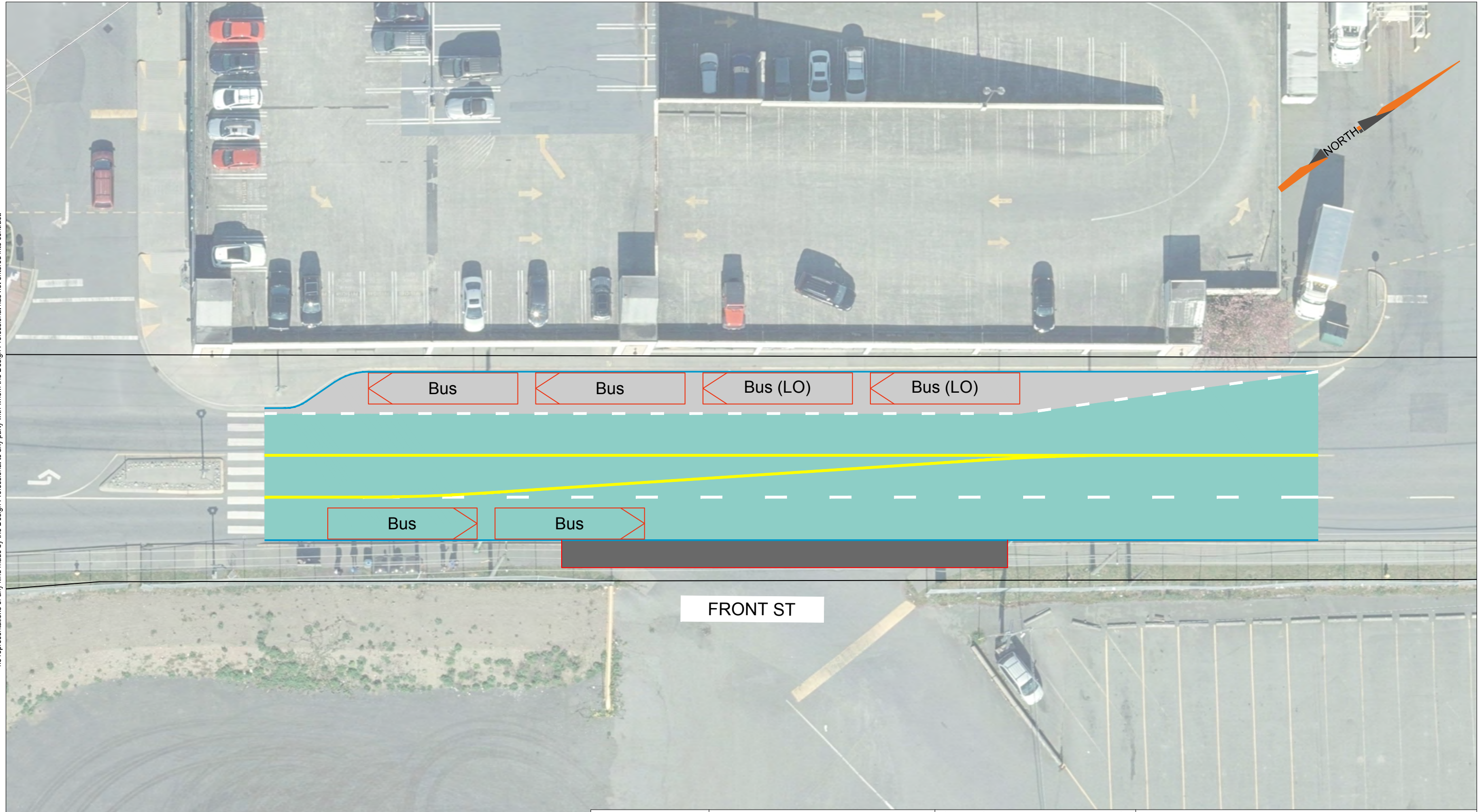
**OPTION B
 NANAIMO DOWNTOWN
 TRANSIT EXCHANGE**



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PROJECT: V:\Project_Files\2452 - Downtown Nanaimo Transit Exchange Study\5 - Design\02 - Design Files (AutoCAD, C3D)\2452 - Nanaimo Downtown Transit Exchange.dwg
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 PLOTTED BY: Brian Seen

These Design Documents are prepared solely for the use by the party with whom the Design Professional has entered into a contract, and there are no representations of any kind made by the Design Professional to any party with whom the Design Professional has not entered into contract.



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TITLE: **FRONT STREET
NANAIMO DOWNTOWN
TRANSIT EXCHANGE**



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APPENDIX D: CLASS D COST ESTIMATES

CONCEPTUAL DESIGN COST ESTIMATE

Project: Downtown Transit Exchange - Terminal Ave - Opt A Bus Bays
 Area: Terminal Ave @ Commercial St, Nanaimo, BC
 Prepared by: Tom Baumgartner
 Cost Estimate Class: D

Date: August 15, 2018
 Project No.: 2452.B01

ITEMS	QUANTITY	UNITS	UNIT COST	UNITS	TOTAL COST
Removals:					
Sawcut	295	rea	\$ 10.00	m	\$ 2,950.00
Asphalt	3800	m ²	\$ 10.00	m ²	\$ 38,000.00
Concrete Curb & Gutter	500	m	\$ 15.00	m	\$ 7,500.00
Concrete & Sidewalk	1250	m ²	\$ 35.00	m ²	\$ 43,750.00
Tree Removal	9	each	\$ 2,500.00	each	\$ 22,500.00
Fence	25	m	\$ 20.00	m	\$ 500.00
Signal Pole and Secondary Head	1	each	\$ 8,000.00	each	\$ 8,000.00
Light Standard	4	each	\$ 5,000.00	each	\$ 20,000.00
Catch Basin	8	each	\$ 700.00	each	\$ 5,600.00
Subtotal					\$ 148,800.00
Installation - Civil Works:					
Gravel 100mm - 25mm Crush	5350	m ²	\$ 96.00	m ²	\$ 513,600.00
Sub-Grade Sub-Base 200mm	5350	m ²	\$ 79.00	m ²	\$ 422,650.00
Non-Mountable (Barrier) Curb & Gutter	470	m	\$ 200.00	m	\$ 94,000.00
Rollover Curb & Gutter	270	m	\$ 200.00	m	\$ 54,000.00
Concrete & Sidewalk	1055	m ²	\$ 180.00	m ²	\$ 189,900.00
Transit Shelter Pad	24	m ²	\$ 180.00	m ²	\$ 4,320.00
Asphalt (machine laid)	3250	m ²	\$ 110.00	m ²	\$ 357,500.00
Catch Basin	6	each	\$ 2,500.00	each	\$ 15,000.00
Update Manhole Lids	4	each	\$ 800.00	each	\$ 3,200.00
Underground Storm & Utilities	1	LS	@ 30% Civil	LS	\$ 496,251.00
Subtotal					\$ 2,150,421.00
Installation - Transit Exchange:					
Concrete Bus Bays	760	m ²	\$ 200.00	m ²	\$ 152,000.00
Transit Shelter T4	4	each	\$ 50,000.00	each	\$ 200,000.00
PI Display	4	each	\$ 20,000.00	each	\$ 80,000.00
Benches	4	each	\$ 1,500.00	each	\$ 6,000.00
Waste Receptacle	10	each	\$ 1,000.00	each	\$ 10,000.00
Transit Exchange Signage	10	each	\$ 500.00	each	\$ 5,000.00
Exchange Lighting	4	each	\$ 5,000.00	each	\$ 20,000.00
Tactile Strips (1200x600)	6	m ²	\$ 900.00	m ²	\$ 5,400.00
Bike Racks	6	each	\$ 1,000.00	each	\$ 6,000.00
Bike Lockers	4	each	\$ 6,000.00	each	\$ 24,000.00
Subtotal					\$ 508,400.00



CONCEPTUAL DESIGN COST ESTIMATE

Project: Downtown Transit Exchange - Terminal Ave - Opt A Bus Bays
 Area: Terminal Ave @ Commercial St, Nanaimo, BC
 Prepared by: Tom Baumgartner
 Cost Estimate Class: D

Date: August 15, 2018
 Project No.: 2452.B01

ITEMS	QUANTITY	UNITS	UNIT COST	UNITS	TOTAL COST
<u>Pavement Markings and Signage:</u>					
Paint (Longitudinal)	580	m	\$ 10.00	m	\$ 5,800.00
Paint (Crosswalk)	95	m	\$ 20.00	m	\$ 1,900.00
Paint (Arrow)	6	each	\$ 500.00	each	\$ 3,000.00
Paint (Bus Bays)	160	m ²	\$ 80.00	m ²	\$ 12,800.00
Signs	20	each	\$ 500.00	each	\$ 10,000.00
Subtotal					\$ 33,500.00

<u>Urban Design:</u>					
Street Lighting (Davit)	4	each	\$ 6,500.00	each	\$ 26,000.00
Bollards	10	each	\$ 500.00	each	\$ 5,000.00
Stamped Concrete	285	m ²	\$ 310.00	m ²	\$ 88,350.00
Landscaping & Irrigation	1	LS	\$ 80,000.00	LS	\$ 80,000.00
Tactile Strips for Letdowns (1200x300)	10	m ²	\$ 900.00	m ²	\$ 9,000.00
Subtotal					\$ 208,350.00

<u>Relocate & Regrade:</u>					
Utility Pole	1	each	\$ 10,000.00	each	\$ 10,000.00
Signal Poles	4	each	\$ 6,500.00	each	\$ 26,000.00
Hydrant	1	each	\$ 5,000.00	each	\$ 5,000.00

Subtotal					\$ 41,000.00
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<u>General:</u>					
Mobilization	1	LS	\$ 40,000.00	LS	\$ 40,000.00
Traffic Control	1	LS	\$ 100,000.00	LS	\$ 100,000.00
Subtotal					\$ 140,000.00

	Subtotal	\$	3,230,471.00
20%	Contingency	\$	646,094.20
15%	Engineering	\$	484,570.65
10%	Inflation	\$	323,047.10
	Total	\$	4,684,190.00
		\$	4,700,000.00

Notes:
 Estimate does not include any underground utility relocations or drainage

Disclaimer:

Whereas any opinions of probable cost prepared by Watt Consulting Group ("the Engineer") will be based on incomplete or preliminary information, and will also be based on factors over which the Engineer has no control, the Engineer does not guarantee the accuracy of these opinions of probable cost and shall have no liability where the probable costs are exceeded.

CONCEPTUAL DESIGN COST ESTIMATE

Project: Downtown Transit Exchange - Terminal Ave - Opt B On Road
 Area: Terminal Ave @ Commercial St, Nanaimo, BC
 Prepared by: Tom Baumgartner
 Cost Estimate Class: D

Date: August 15, 2018
 Project No.: 2452.B01

ITEMS	QUANTITY	UNITS	UNIT COST	UNITS	TOTAL COST
Removals:					
Sawcut	130	rea	\$ 10.00	m	\$ 1,300.00
Asphalt	3650	m ²	\$ 10.00	m ²	\$ 36,500.00
Concrete Curb & Gutter	455	m	\$ 15.00	m	\$ 6,825.00
Concrete & Sidewalk	1250	m ²	\$ 35.00	m ²	\$ 43,750.00
Tree Removal	9	each	\$ 2,500.00	each	\$ 22,500.00
Fence	25	m	\$ 20.00	m	\$ 500.00
Signal Pole and Secondary Head	1	each	\$ 8,000.00	each	\$ 8,000.00
Light Standard	2	each	\$ 5,000.00	each	\$ 10,000.00
Catch Basin	6	each	\$ 700.00	each	\$ 4,200.00
Subtotal					\$ 133,575.00
Installation - Civil Works:					
Gravel 100mm - 25mm Crush	4605	m ²	\$ 96.00	m ²	\$ 442,080.00
Sub-Grade Sub-Base 200mm	4605	m ²	\$ 79.00	m ²	\$ 363,795.00
Non-Mountable (Barrier) Curb & Gutter	485	m	\$ 200.00	m	\$ 97,000.00
Rollover Curb & Gutter	110	m	\$ 200.00	m	\$ 22,000.00
Concrete & Sidewalk	875	m ²	\$ 180.00	m ²	\$ 157,500.00
Transit Shelter Pad	24	m ²	\$ 180.00	m ²	\$ 4,320.00
Asphalt (machine laid)	3360	m ²	\$ 110.00	m ²	\$ 369,600.00
Catch Basin	6	each	\$ 2,500.00	each	\$ 15,000.00
Update Manhole Lids	4	each	\$ 800.00	each	\$ 3,200.00
Underground Storm & Utilities	1	LS	@ 30% Civil	LS	\$ 442,348.50
Subtotal					\$ 1,916,843.50
Installation - Transit Exchange:					
Concrete Bus Bays	230	m ²	\$ 200.00	m ²	\$ 46,000.00
Transit Shelter T4	4	each	\$ 50,000.00	each	\$ 200,000.00
PI Display	4	each	\$ 20,000.00	each	\$ 80,000.00
Benches	4	each	\$ 1,500.00	each	\$ 6,000.00
Waste Receptacle	10	each	\$ 1,000.00	each	\$ 10,000.00
Transit Exchange Signage	10	each	\$ 500.00	each	\$ 5,000.00
Exchange Lighting	4	each	\$ 5,000.00	each	\$ 20,000.00
Tactile Strips (1200x600)	6	m ²	\$ 900.00	m ²	\$ 5,400.00
Bike Racks	6	each	\$ 1,000.00	each	\$ 6,000.00
Bike Lockers	4	each	\$ 6,000.00	each	\$ 24,000.00
Subtotal					\$ 402,400.00



CONCEPTUAL DESIGN COST ESTIMATE

Project: Downtown Transit Exchange - Terminal Ave - Opt B On Road
 Area: Terminal Ave @ Commercial St, Nanaimo, BC
 Prepared by: Tom Baumgartner
 Cost Estimate Class: D

Date: August 15, 2018
 Project No.: 2452.B01

ITEMS	QUANTITY	UNITS	UNIT COST	UNITS	TOTAL COST
<u>Pavement Markings and Signage:</u>					
Paint (Longitudinal)	570	m	\$ 10.00	m	\$ 5,700.00
Paint (Crosswalk)	110	m	\$ 20.00	m	\$ 2,200.00
Paint (Arrows)	6	each	\$ 500.00	each	\$ 3,000.00
Paint (Bus Bays)	160	m ²	\$ 80.00	m ²	\$ 12,800.00
Signs	20	each	\$ 500.00	each	\$ 10,000.00
Subtotal					\$ 33,700.00
<u>Urban Design:</u>					
Street Lighting (Davit)	4	each	\$ 6,500.00	each	\$ 26,000.00
Bollards	10	each	\$ 500.00	each	\$ 5,000.00
Stamped Concrete	140	m ²	\$ 310.00	m ²	\$ 43,400.00
Landscaping & Irrigation	1	LS	\$ 80,000.00	LS	\$ 80,000.00
Tactile Strips for Letdowns (1200x300)	10	m ²	\$ 900.00	m ²	\$ 9,000.00
Subtotal					\$ 163,400.00
<u>Relocate & Regrade:</u>					
Signal Poles	4	each	\$ 6,500.00	each	\$ 26,000.00
Hydrant	1	each	\$ 5,000.00	each	\$ 5,000.00
Subtotal					\$ 31,000.00
<u>General:</u>					
Mobilization	1	LS	\$ 40,000.00	LS	\$ 40,000.00
Traffic Control	1	LS	\$ 100,000.00	LS	\$ 100,000.00
Subtotal					\$ 140,000.00

	Subtotal	\$	2,820,918.50
20%	Contingency	\$	564,183.70
15%	Engineering	\$	423,137.78
10%	Inflation	\$	282,091.85
	Total	\$	4,090,340.00
		\$	4,100,000.00

Notes:
 Estimate does not include any underground utility relocations or drainage

Disclaimer:

Whereas any opinions of probable cost prepared by Watt Consulting Group ("the Engineer") will be based on incomplete or preliminary information, and will also be based on factors over which the Engineer has no control, the Engineer does not guarantee the accuracy of these opinions of probable cost and shall have no liability where the probable costs are exceeded.

CONCEPTUAL DESIGN COST ESTIMATE

Project: Downtown Nanaimo Transit Exchange - Front Street
 Area: Front Street, Nanaimo, BC
 Prepared by: Tom Baumgartner
 Cost Estimate Class: D

Date: August 14, 2018
 Project No.: 2443.B01

ITEMS	QUANTITY	UNITS	UNIT COST	UNITS	TOTAL COST
Removals:					
Sawcut	65	m	\$ 10.00	m	\$ 650.00
Asphalt	115	m ²	\$ 10.00	m ²	\$ 1,150.00
Concrete Curb & Gutter	20	m	\$ 15.00	m	\$ 300.00
Concrete & Sidewalk	35	m ²	\$ 35.00	m ²	\$ 1,225.00
Eradicate Pavement Lines	73	m	\$ 30.00	m	\$ 2,190.00
Eradicate Pavement Arrows	2	each	\$ 30.00	each	\$ 60.00
Subtotal					\$ 5,575.00
Installation - Civil Works:					
Gravel 100mm - 25mm Crush	150	m ²	\$ 96.00	m ²	\$ 14,400.00
Non-Mountable (Barrier) Curb & Gutter	37	m	\$ 290.00	m	\$ 10,730.00
Concrete & Sidewalk	86	m ²	\$ 180.00	m ²	\$ 15,480.00
Transit Shelter Pad	12	m ²	\$ 180.00	m ²	\$ 2,160.00
Asphalt (machine laid)	60	m ²	\$ 110.00	m ²	\$ 6,600.00
Subtotal					\$ 49,370.00
Installation - Transit Exchange:					
Transit Shelter T4	2	each	\$ 50,000.00	each	\$ 100,000.00
PI Display	2	each	\$ 20,000.00	each	\$ 40,000.00
Benches	2	each	\$ 1,500.00	each	\$ 3,000.00
Waste Receptacle	2	each	\$ 1,000.00	each	\$ 2,000.00
Transit Exchange Signage	6	each	\$ 500.00	each	\$ 3,000.00
Subtotal					\$ 148,000.00
Pavement Markings and Signage:					
Paint (Longitudinal)	400	m	\$ 10.00	m	\$ 4,000.00
Subtotal					\$ 4,000.00



CONCEPTUAL DESIGN COST ESTIMATE

Project: Downtown Nanaimo Transit Exchange - Front Street
 Area: Front Street, Nanaimo, BC
 Prepared by: Tom Baumgartner
 Cost Estimate Class: D

Date: August 14, 2018
 Project No.: 2443.B01

ITEMS	QUANTITY	UNITS	UNIT COST	UNITS	TOTAL COST
General:					
Mobilization	1	LS	\$ 20,000.00	LS	\$ 20,000.00
Traffic Control	1	LS	\$ 30,000.00	LS	\$ 30,000.00
Subtotal					\$ 50,000.00

	Subtotal	\$	256,945.00
20%	Contingency	\$	51,389.00
15%	Engineering	\$	38,541.75
10%	Inflation	\$	25,694.50
	Total	\$	372,580.00
		\$	380,000.00

Notes:
 Estimate does not include any underground utility relocations or drainage

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