

Waverley Underpass (CN Rail Line) - Preliminary Design Study

Welcome

WE WANT TO HEAR FROM YOU!

Ask questions, give us your thoughts & ideas, fill out an exit survey, and tell us what you think!

The purpose of today's open house is to provide project information and obtain your feedback and input regarding the Waverley Underpass Preliminary Design Study.

Representatives from the project team are here to answer your questions and address any concerns you might have.

We want to hear from you. Ask questions, give us your thoughts and ideas, fill out an exit survey, and tell us what you think!

Large scale versions of the drawings can be found on the central tables.

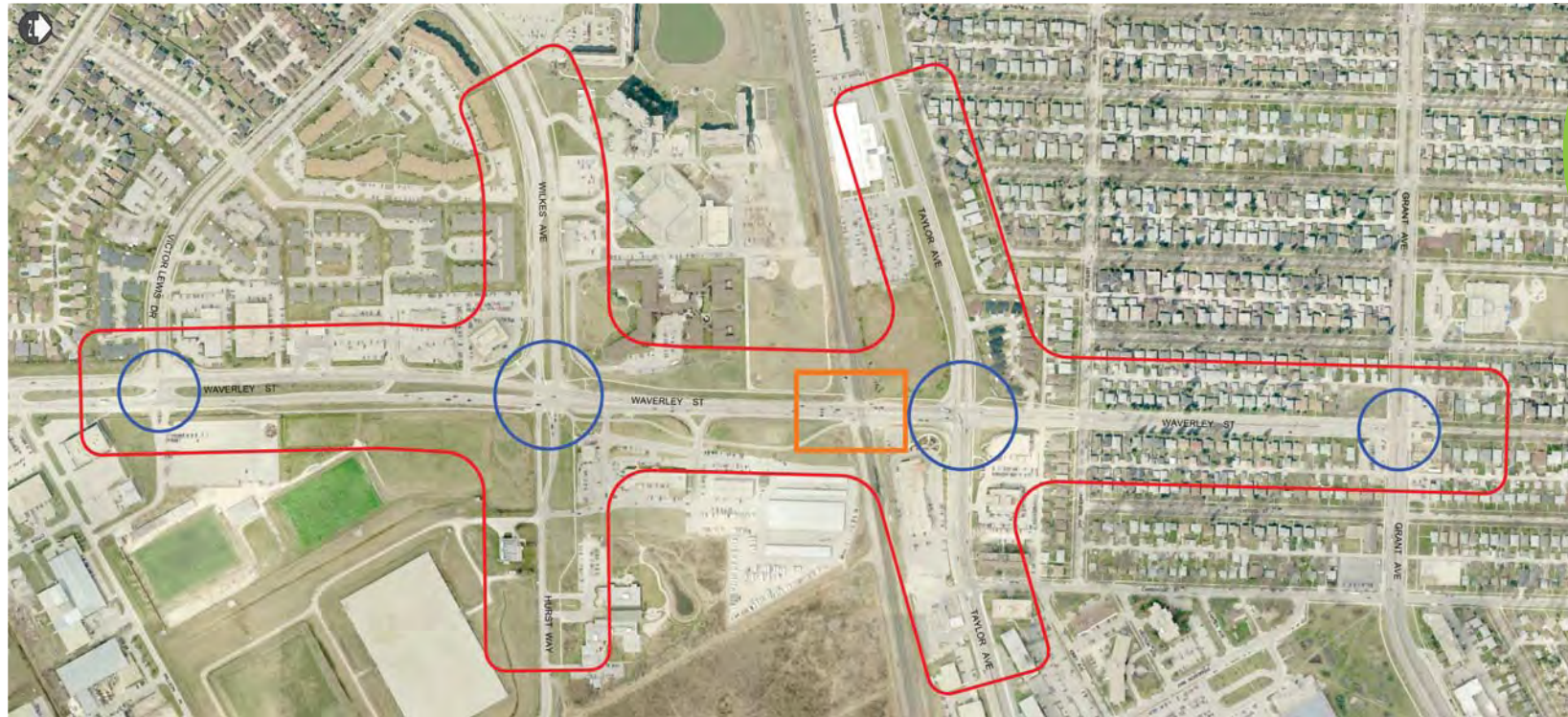
All open house materials and the exit survey will be posted to the project website.

www.winnipeg.ca/waverleyunderpass



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Project Background and Overview



BENEFITS

A major piece of regional infrastructure will have differing benefits for different groups. Some of the major benefits are as follows:

- Relieve traffic congestion in the area;
- Improve safety for drivers, pedestrians, and active transportation users;
- Discourage cut-through traffic in existing neighbourhoods.
- Reduce variability in travel times due to random train crossing events.

- Underpass Site
- Key Intersections
- Project Study Area

In early 2014, the City of Winnipeg initiated a preliminary design study for the Waverley Underpass Project.

The Waverley Street crossing of the CNR Rivers rail line has approximately 30,000 vehicles, and an average of 40 train movements passing through daily. This causes significant traffic disruption. The purpose of this project is to undertake the preliminary design of several grade separation alternatives for the Waverley crossing and determine estimated project costs.

Although the project has been identified as a City priority, it has not yet received funding in the capital budget, and therefore there is no current timeline for construction.

The project team has been tasked with developing a high level design for a grade separation of Waverley Street and the CNR Rivers rail line.

The design will also include intersection improvements, and bicycle & pedestrian pathway improvements in the project area.

The project does not include changes to the width of Waverley north of Taylor, or changes to streets outside of the above noted Project Study Area.

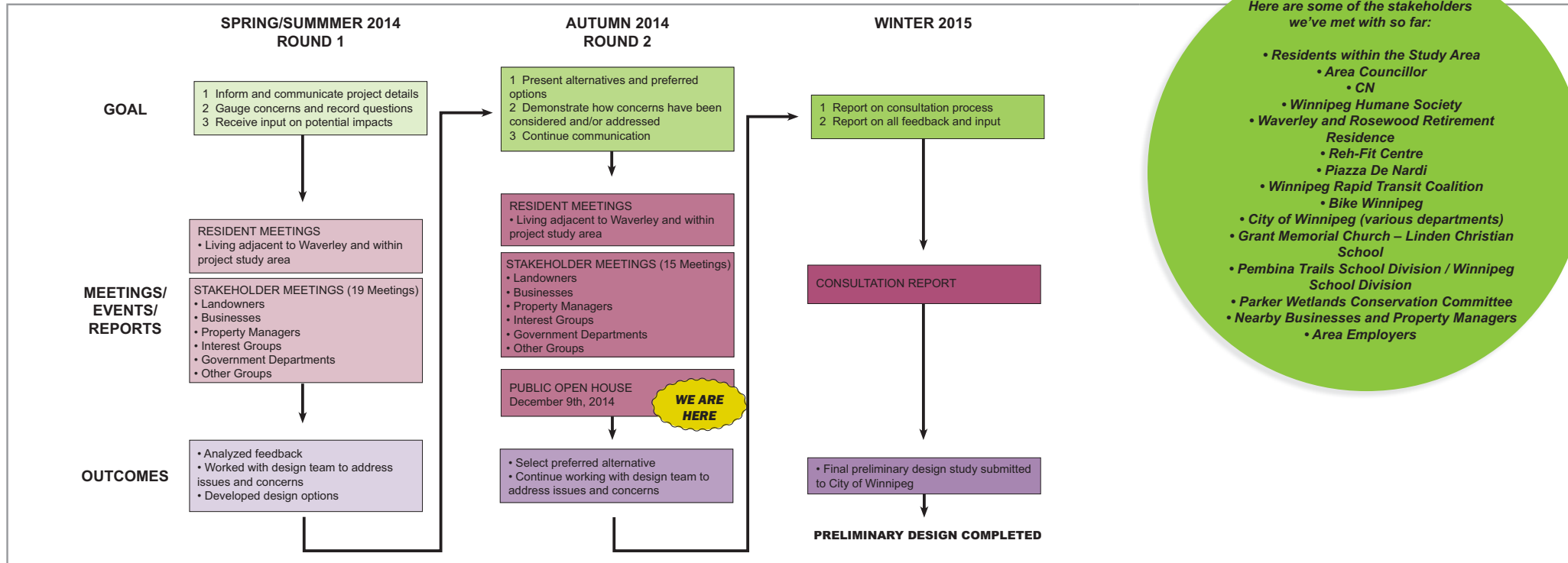
As a complex infrastructure project, the preliminary design includes several interrelated components, including:

- Land surveys and geotechnical investigations;
- Environmental assessments;
- Transportation studies, including active transportation, traffic, transit, and access management;
- Railway alignment and detour designs;
- Drainage studies and hydraulic analysis;
- Road and bridge alternatives design;
- Public consultation and stakeholder engagement;
- Cost estimates and construction phasing;
- Noise, safety, and risk assessments.



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Public Consultation



As a part of the project, the team has designed a comprehensive public consultation program. From June 2014 until now, the team has met with various stakeholders in two separate rounds of consultations.

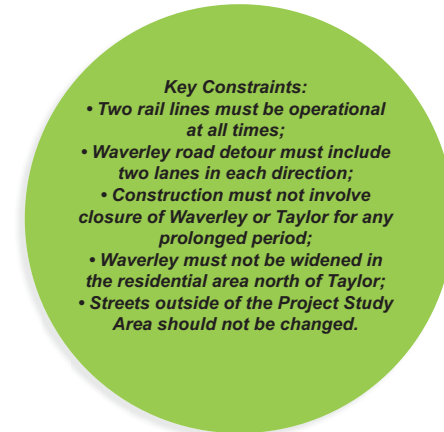
The purpose of the consultation strategy has been to deliver information to key stakeholders in a timely manner, while receiving input on potential project impacts and design options. The consultation team works directly with the design team to help address stakeholder concerns, identify alternatives, and mitigate potential impacts where possible.

Generally, the feedback for the project has been positive, and input from stakeholders can roughly be grouped into the following themes:

- Majority supported the project
- Many asked whether Sterling Lyon to Taylor/Pembina was still being considered
- Many asked whether a southern rail detour could be made permanent
- Most supported a Taylor twinning all the way through to Kenaston
- Most noted that the southbound Waverley (from westbound Taylor) movement needed to be improved
- Some noted that the Hurst/Waverley intersection needed improvement
- Many asked whether the rail lines could be moved outside of the City
- Most supported the eastern road detour option
- Some expressed concern that cut-through traffic in River Heights would increase as a result of the project
- Many asked whether traffic would increase as a result of the project
- A few were concerned about project costs and benefits

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Constraints



As with most major infrastructure projects, the design team has to deal with existing constraints and challenges.

The map above outlines some of the infrastructure challenges that the project team must consider while designing the underpass. All need to be considered and addressed as part of the preliminary design.

Constraints can be classified into several categories, including:

Operations

A key project requirement is that the two rail lines and four lanes of Waverley Street traffic continue to flow throughout the duration of construction. This can pose a challenge in terms of construction staging and design.

Infrastructure

The project team must carefully work around both above ground and subsurface infrastructure in the design, including land drainage sewers, water mains, fiber optics, power cables, distribution lines, and roads.

Property

As with any major project in a built up area, there are property, land, and building constraints. While most of the project can be built on City land, there will be impacts to some adjacent properties during construction, and in some cases, permanently.

Natural Features

The project team must also consider the natural characteristics of the area, including land drainage and soil conditions.

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Environmental, Noise, and Drainage Studies



An environmental investigation was undertaken as part of this project.

A total of 10 boreholes were conducted on CN right-of-way and City of Winnipeg properties to a depth of 4.5 metres below ground surface. Soils collected were screened for hydrocarbon vapor concentrations and select soil samples were submitted for analysis. A total of 44 samples were submitted. Based on laboratory analysis, evidence of arsenic exceeding the selected criteria was found in 1 of the 10 boreholes. All other soil samples collected from the site were one order of magnitude below the selected guidelines suggesting the arsenic found in the soil is not widely distributed across the site and further assessment is not warranted.



A noise study is being completed as part of the project.

The project will ensure that noise impacts on the surrounding area are either improved, or at the very least, stay consistent with the current situation.

The project will also involve reconstruction of the existing rail embankment and new joint free rail for the CN Rivers Sub rail crossing. Experience has indicated that this may result in reductions in vibration and noise from rail operations.



There are several challenges that the project team must deal with regarding drainage:

- Poor land drainage in the area;
- Drainage systems in the area that are at or near capacity;
- The project area intersects three different land drainage districts; and,
- Two of those drainage districts are combined sewer districts.

The underpass will require a lift station to drain the project area. The project team is currently working out the details regarding its size, location, capacity, and outlet. The drainage improvements for this project will ensure that existing drainage challenges are not exacerbated, and may actually improve.

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Transportation Study



2014 AM Intersection Capacity Utilization



Detour AM Intersection Capacity Utilization



2037 AM Intersection Capacity Utilization

- ICU 0-75% *Little to moderate congestion*
- ICU 75-85% *Moderate congestion*
- ICU 85-100% *Typical rush hour congestion*
- ICU 100%+ *Over capacity, significant traffic delays*

Intersection Capacity Utilization (ICU)
 is a measure of how much of an intersection's ability to carry its maximum theoretical volume of traffic has been used.

These maps show the ICU during morning (AM) periods for three time periods; existing (2014), during detour (2017), and future road improvements (2037).

In order to make recommendations on turning lane lengths, signal timing, and intersection improvements, the project team undertook a comprehensive transportation study.

The study included traffic counts, pedestrian/cyclist counts, volume projections, and an active transportation (AT) facility review. The team used traffic software modeling for short, medium, and long-term timelines, taking into account population growth, development, and commuting patterns in the city's southwest quadrant. The study also accounts for potential traffic changes due

to upcoming construction work on the Pembina Highway underpass at Jubilee, and other projects identified in the City's capital budget.

The traffic study's key findings include:

- Predominant turning movements at Waverley and Taylor are northbound to eastbound during the AM peak (right turn during morning rush hour) and westbound to southbound during the PM peak (left turn during evening rush hour).

- Based on traffic modeling, in 2014, the Waverley and Taylor intersection is over capacity and the Waverley and Wilkes intersection is approaching maximum capacity during rush hour. As a result, improvements to key intersections were suggested. See Board 10.

- The detour will operate well if certain vehicular movements are eliminated. See Board 7.

- In 2037, the furthest date to which traffic projections are made, the intersection will operate near capacity with the intersection improvements. See Board 10.

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Construction Detours



Detour Options Considered:

- An East side road detour
- A West side road detour
- A North rail detour
- A South rail detour
- A North/South one track couplet detour

Key Findings:

- A North rail detour may result in significant permanent impacts to existing buildings and facilities;
- An East road detour may result in significant permanent impacts to existing buildings and facilities;
- The South rail and West road detours are the preferred options;
- Some vehicular movements at the Waverley and Taylor intersections must be eliminated for the detour to operate safely and efficiently. Alternate routes are available.

For the CN rail line to maintain continuous rail operations throughout the duration of construction, a rail detour (shoofly) must be constructed prior to the construction of the underpass.

Due to several constraints, including infrastructure, land, building, and phasing, a southern rail detour was deemed most feasible.

In order for Waverley's traffic volumes to continue to flow through the area during construction, a road detour maintaining four lanes of vehicular traffic was required.

The design team had to consider rail operations and crossing safety, property constraints, infrastructure, soil conditions, safety concerns, turning radii and road geometry, among other factors, when deciding where to place the detour. A western road detour has been identified as the preferred alternative.

The active transportation and pedestrian route must also detour during construction, and ensure active transportation users and pedestrians are located safely away from the construction zone.

An active transportation and pedestrian route will be provided on the west side of the Waverley detour, and link to a similar facility on the north side of Taylor.

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Draft Concept - Overall Plan



The project team has developed the concept above for the preliminary design.

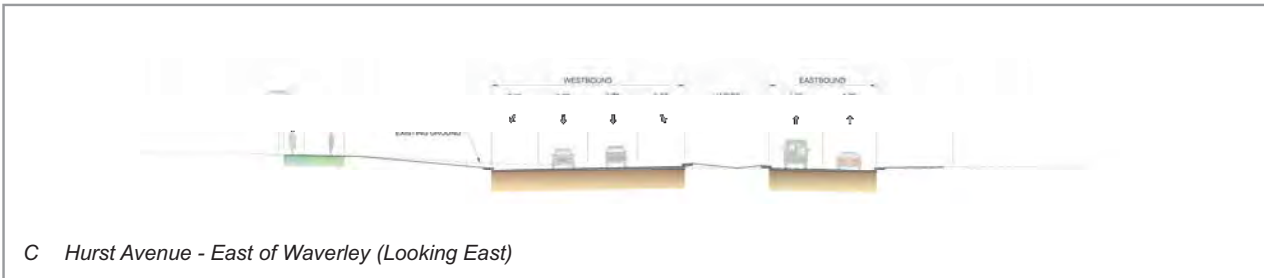
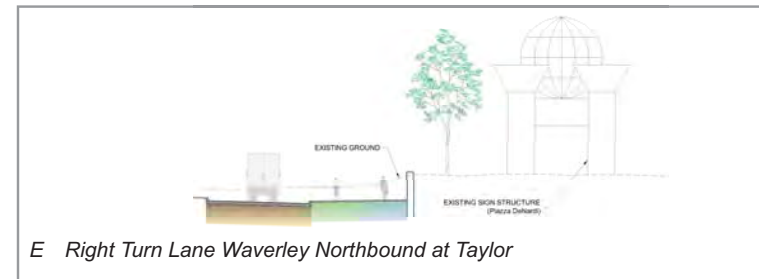
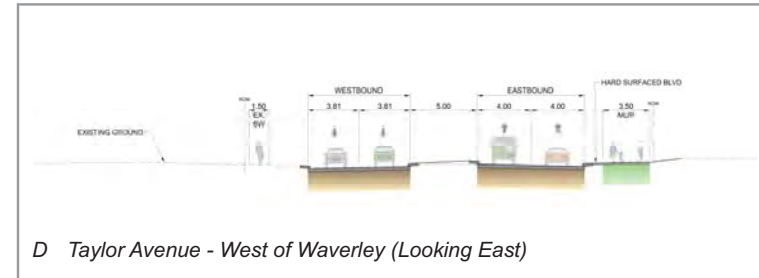
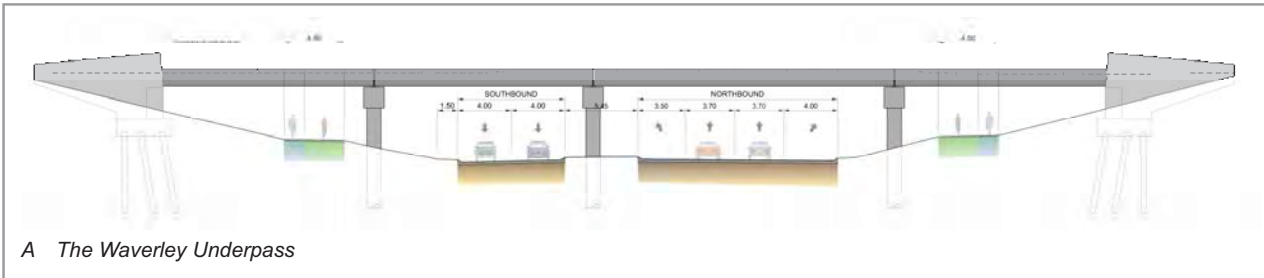
The design includes an underpass of the CN mainline, roadway and active transportation improvements along Waverley between Grant and Wilkes, connections to the future Southwest Rapid Transit Corridor for transit vehicles and to the associated active transportation corridor, and intersection improvements at three of the key intersections. The project team also recommends making Taylor four lanes, from Waverley to Lindsay.

The project team arrived at this concept for the preliminary design after considering:

- An overpass option. Due to clearance requirements and grades, an overpass option would have significant impacts on surrounding properties and neighbourhoods.
- No grade separated crossing. The transportation study indicated that existing congestion challenges would increase in the future without an improved crossing.

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Draft Concept - Cross Sections



These cross sections illustrate the changes to the roadways and active transportation networks.

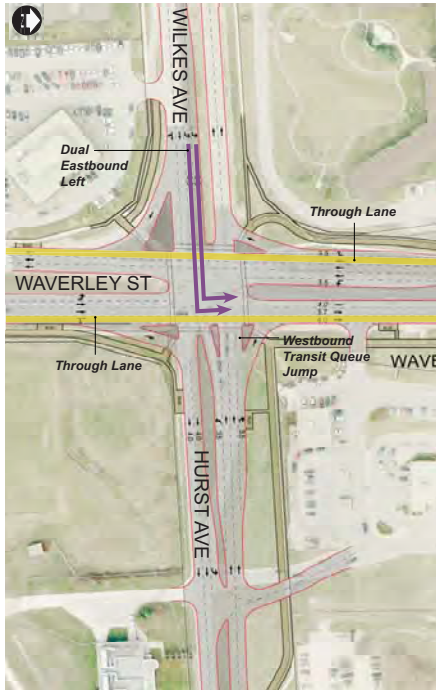
In the sections above, the blue marks pedestrian pathways, the green marks active transportation pathways, and the brown marks roadways.

The design of the underpass is shown in A.

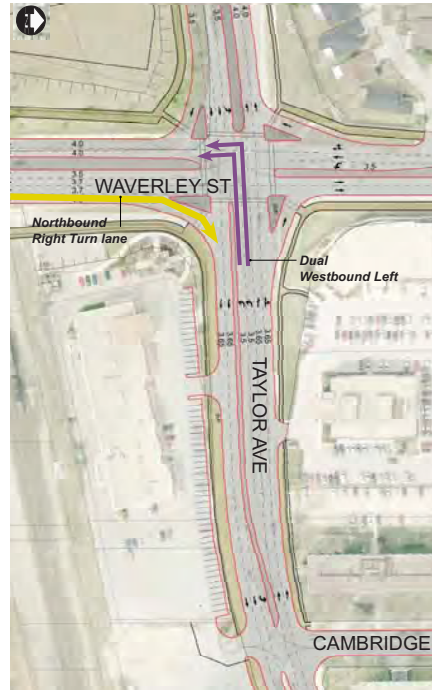
The tracks are raised by approximately 1 foot. The preferred option for the rail bridge is a cast-in-place two track ballast deck girder bridge. The bridge has been designed to meet minimum vehicle clearance requirements, with 5.3 metres from the road surface to the bottom of the bridge structure.

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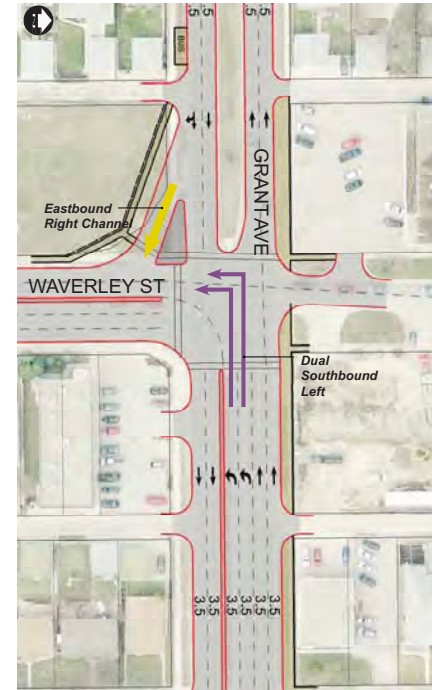
Intersection Improvements



Waverley & Wilkes/Hurst Recommendations



Waverley & Taylor Recommendations



Waverley & Grant Recommendations

Major recommendations for intersection improvements based on the traffic study are shown here. The project team has recommended various other improvements to turning movements, pedestrian crossings, and private approaches.

Waverley & Wilkes/Hurst Recommendations

- Widen Waverley Street to three lanes in each direction through the Wilkes intersection to improve capacity;
- Add a second left turning lane from eastbound Wilkes Avenue to northbound Waverley.

Waverley & Taylor Recommendations

- Twin Taylor Avenue (make it 4 lanes) for its entire length between Waverley Street and Lindsay Street;
- Add a second left turn lane from westbound Taylor Avenue to southbound Waverley Street, and increase the storage distance;
- Add a third lane northbound from Wilkes to Taylor as a dedicated right turn lane onto eastbound Taylor;
- The intersection of Waverley and Taylor will be lowered by approximately 900mm (3 feet) to maintain clearance under the underpass.

Waverley & Grant Recommendations

- Add a second left turn lane from westbound Grant Avenue to southbound Waverley Street.

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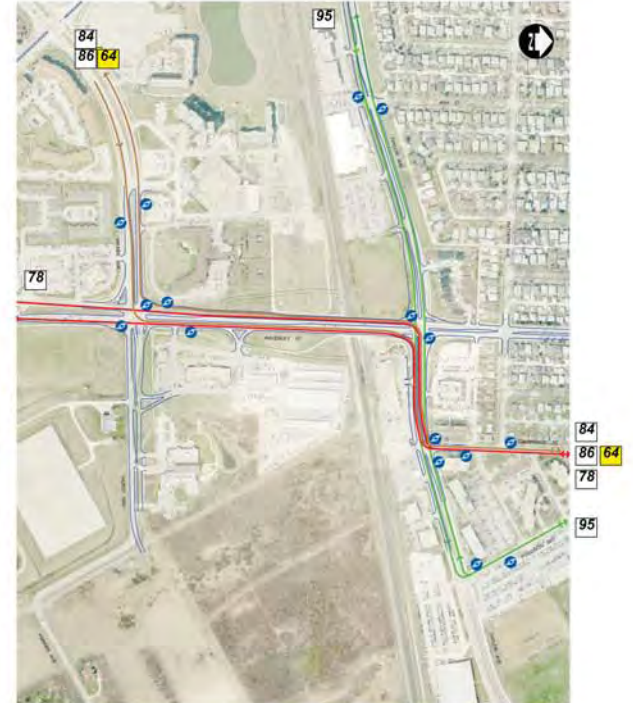
Transit



Winnipeg Transit Routes and Stops - Existing



Winnipeg Transit Routes and Stops - During Construction



Winnipeg Transit Routes and Stops - After

Winnipeg Transit will need to alter some of their routes and relocate a handful of bus stops in order to maintain transit operations during construction.

The maps above show where routes and stops are located currently, as well as where they will be located after construction.

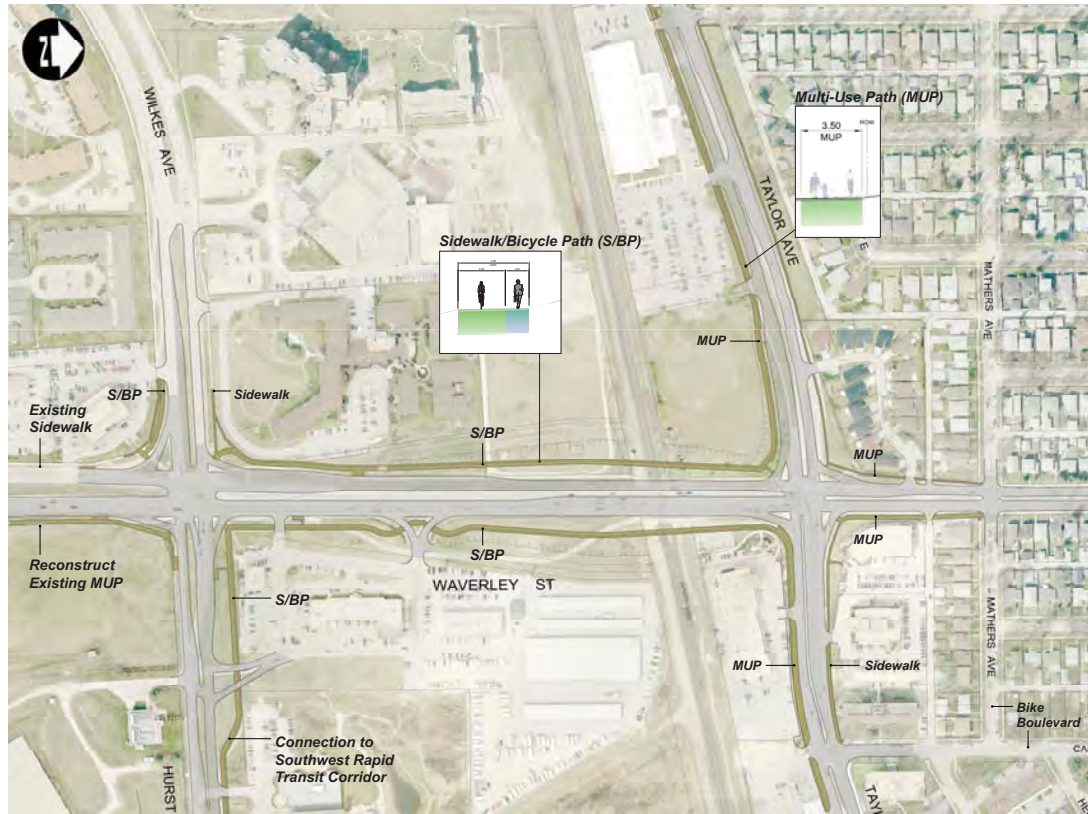
There is the potential for the transit network to connect into the future Phase 2 of the SouthWest Rapid Transit Corridor.

Queue jumps and diamond lanes could potentially be implemented along Hurst Way and Wilkes Avenue in the Waverley area, to provide improved transit service to southwest Winnipeg.



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Active Transportation (AT) and Pedestrian Network



AT network before construction

- Off Street Path
- On Street Route/Facility



Proposed AT network after construction

- Off Street Path
- On Street Route/Facility
- Future SWRT Path

It is important that this project incorporate active transportation (AT) and pedestrian facilities that are safe, direct, and up to current standards.

As with vehicles, the AT network between Wilkes and Taylor is the 'pinch point' across the railway, and handles the most AT volumes of the area. A high order facility that provides a separation of cyclists and pedestrians is best able to handle future AT growth. A separated sidewalk/bike path (S/BP) will be on both sides of Waverley.

Following an AT facility review, the project team has designed an overall concept that utilizes :

- separated sidewalks and bike paths (S/BP) with 1.5 metres for pedestrian sidewalks and 3.0 metres for bike paths
- multi-use paths (MUP) that are a total of 3.5 metres wide and are shared between cyclists and pedestrians.

The AT paths will be linked to the existing AT network and to the AT corridor adjacent to the Southwest Rapid Transit (SWRT) Corridor.

Due to the open design of the underpass, there will be plenty of natural light. Night lighting will be added to increase safety.



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Frequently Asked Questions

When will this be built?

Although identified as a regional infrastructure priority by the City, capital funding has not been set aside nor has any funding agreement been signed at this point. There is no construction timeline at the moment.

Will Waverley and Taylor be closed?

Both Waverley Street and Taylor Avenue will remain open to traffic during construction, however some vehicular movements will be eliminated. Please see the proposed detour map on Board 7 for details about how traffic will flow during construction.

How much is this going to cost?

A major component of this preliminary design study is to develop a high level cost estimate for the underpass and major road works. A Class 3 cost estimate will be provided to the City as part of the preliminary design report. A Class 3 estimate is defined by the City of Winnipeg as a construction cost estimate based on a preliminary design, and is deemed to be accurate within +30% to -20% of the final construction cost. Estimated costs would be refined to a higher level of detail as part of the detailed design process.

How will the project be paid for?

Discussions are ongoing; however, the project will more than likely be funded by the City of Winnipeg and other levels of government, as well as contributions by CN. The Waverley Underpass project will need to be considered in the City of Winnipeg's Capital Infrastructure budgeting process. CN Railway has a financial obligation for a portion of rail crossing under an existing agreement with the City of Winnipeg. The Federal Government has been approached as an infrastructure funding partner, and discussions are ongoing with the Provincial Government. Funding commitments will need to be finalized before the project may proceed.

Will properties be required, either during construction or post-construction?

It is anticipated that the vast majority of the project can be built on City owned land and right-of-way. However, construction easements or small parcels of land may be needed for the construction of this project. The project team has been in contact with potentially affected landowners throughout the design process.

How will transit and active transportation work during construction?

Bus routes, bus stops, and active transportation pathways will need to be relocated or rerouted during construction. See Boards 7, 11 and 12.

Was an overpass considered?

An overpass was considered early on in the design process. However, due to heights, clearance requirements, property impacts, and other engineering constraints, this option was deemed unfeasible.

What are the environmental impacts?

There are no environmental impacts of note that would result from this project. Soil sampling within the proposed underpass area indicates no issues of concern, and is consistent with Manitoba Conservation regulations. The project would also involve reconstruction of the existing rail bed and replacement of the rail tracks in the study area with seamless rail, which may decrease vibration and noise from rail activities.

Can the rail line be moved out of the city?

Railways fall under Federal jurisdiction, and cannot be forced to move by the City. Moreover, as a mainline, moving the line would be extremely costly and affect several businesses and industries that rely on regular rail service within the city.

Will traffic increase as a result of this project?

The results of the transportation study and traffic modeling indicate that traffic as a whole may increase due to overall growth in the southwest quadrant of the city. However, traffic is expected to flow better due to the proposed road and intersection improvements and due to relieving the congestion caused by frequent train crossings.

Will the project involve changes to street function and design in River Heights, such as the current one-way designation on Waverley north of Grant?

No. The project involves the preliminary design of the underpass, street improvements, pedestrian and bicycle infrastructure, and associated intersection improvements within the study area only. No changes are proposed for the existing street functions and patterns in River Heights.

Is a Sterling Lyon connection to Taylor or Pembina still being considered?

No, this option was examined by the City of Winnipeg, and is no longer being considered. The Waverley location continues to be the preferred rail crossing location, and has been identified as a potential crossing location since at least the early 1970's. The right-of-way and property required for the Waverley Underpass is largely assembled, and would have minimal property impacts. In addition, there is an existing agreement in place with CN for a grade separated rail crossing at Waverley, which obligates the railway to pay for a portion of the crossing.

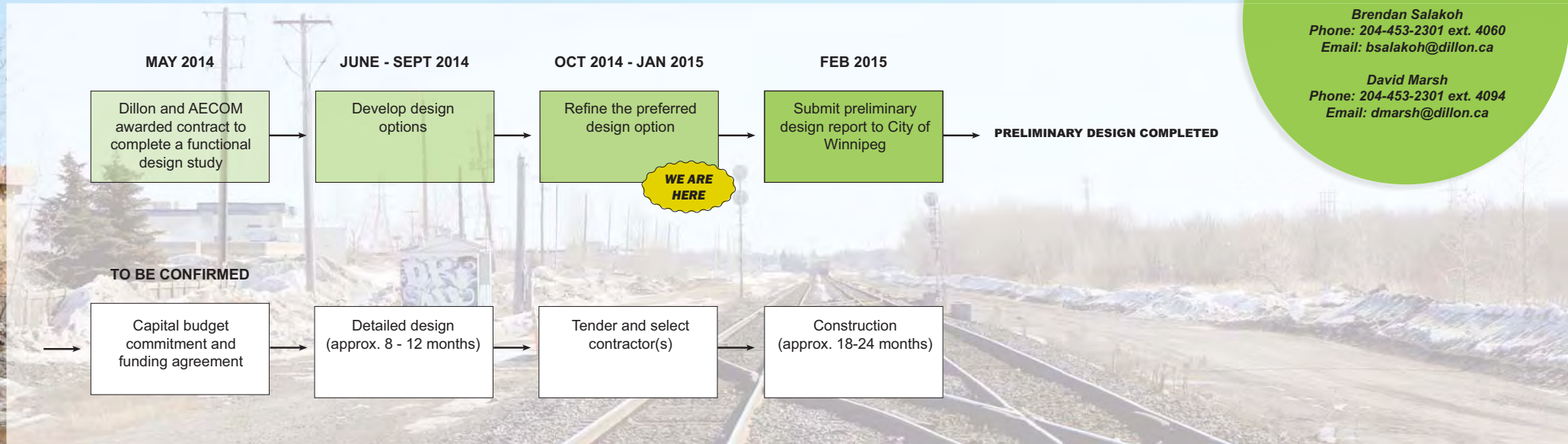
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Next Steps

If you have any further questions, please don't hesitate to contact the public consultation team:

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The feedback collected today will be analyzed and further utilized by the design team, as they refine the preferred design. We will continue to communicate with stakeholders informally, and through the City of Winnipeg's Major Projects webpage.

If funding for this project is allocated in the City's capital budget, further consultation and communication with affected stakeholders would take place through the duration of design and construction.

Thank you for attending! We want to hear from you. Please take a moment to complete and submit the exit survey.

All open house materials and the exit survey will be posted to the project website.

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