

Item No. 9
Halifax Regional Council
May 14, 2013

TO: Mayor Savage and Members of Halifax Regional Council

Original Signed by Director

SUBMITTED BY:

Ken Reashor, P.Eng., Director, Transportation & Public Works

Original Signed by Director

Jane Fraser, Director, Planning and Infrastructure

DATE: April 22, 2013

SUBJECT: Cole Harbour Road and Caldwell Road Intersection Improvement

INFORMATION REPORT

ORIGIN

2006 Regional Municipal Planning Strategy Policy E-19 - HRM shall prepare an Open Space Functional Plan to determine an economically and environmentally sustainable strategy for the equitable maintenance and distribution of parks and open spaces throughout the Municipality.

Pending budget approval, intersection improvements at the intersections of Cole Harbour Road and Caldwell Road will be approved in the 2013/2014 Capital Budget.

Item 10.4.1 raised at the January 29, 2013, meeting of Halifax Regional Council.

MOVED by Councillor Nicoll, seconded by Councillor Karsten, that Halifax Regional Council request a staff report which:

Explores the possibility of acquisition of lands at Cole Harbour Road and Caldwell Road for the purpose of traffic improvements to accommodate pedestrians, cyclists, transit, motorists and the development of a Gateway to the Cole Harbour Basin Communities and the Cole Harbour Road Commercial District.

LEGISLATIVE AUTHORITY

Section 61 section (5a) of the Halifax Regional Municipality Charter regarding the powers of a Municipality regarding property.

BACKGROUND

Caldwell Road is a two lane major collector roadway and Cole Harbour Road/Portland Street is a five lane arterial roadway located on the border of Dartmouth and Cole Harbour. Both Caldwell Road and Cole Harbour Road are classified as candidate bike route on the Active Transportation Plan which is currently under review.

The existing lane configuration on northbound Caldwell Road at the intersection with Cole Harbour Road is a left turn lane and a shared through-right lane. Sidewalk exists on the west side of the intersection but it ends abruptly just past Lodge Court which is 100 metres short of the intersection of Caldwell Road and Hampton Green.

Dorothea Drive on the north-leg of this intersection has relatively low traffic volumes and any change to the intersection will have minimal to no impact on overall performance of this leg. There is a sidewalk on the east side of the street only.

Cole Harbour Road/Portland Street has high peak direction traffic volumes, but both directions are relatively busy throughout the day. Due to limited right-of-way along the corridor, major improvements are not possible eastbound or westbound without significant property acquisition. There are sidewalks on both sides of Cole Harbour Road/Portland Street at and near this intersection.

See attachment one for aerial plans of the intersection.

DISCUSSION

Traffic Services had received numerous complaints from motorists regarding the delays turning left from Caldwell Road to Portland Street during the morning commute. While reviewing the issue, it was also observed that during the afternoon commute there were long vehicle queues on southbound Caldwell Road approaching Hampton Green because of left turning vehicles blocking through traffic. This resulted in vehicles being queued through the intersection and onto Portland Street. Design and Construction identified the need to construct a sidewalk on Caldwell Road and the two projects were combined.

In the AM peak hour there are over 630 vehicles turning left from Caldwell Road to Portland Street which leads to long queues and long delays for motorists heading inbound on Portland Street. The queue in the AM on northbound Caldwell Road is typically backed up beyond Hampton Green (275m+).

In the PM peak, the main issue is motorists on southbound Caldwell Road making left turns onto Hampton Green. Since there is only one southbound travel lane, the left turning vehicles block the through traffic which is leading to long queues on Caldwell Road back to Portland Street. In

addition, to avoid longer delays, some motorists are driving over the curb and on the sidewalk to get around the left turning vehicles.

The long term solution to the traffic concerns in this area is the construction of the Shearwater Connector. Because there are no immediate plans for the Shearwater Connector, improvements are being done at Caldwell Road and Cole Harbour Road/Portland Street in an attempt to alleviate some of the traffic congestion in the short term.

A number of lane configurations for Caldwell Road were proposed and reviewed. Three of the options were evaluated on a cost benefit analysis. A summary of the options and estimated costs are listed in a table on the following page.

The initial design, option 1, recommended by Traffic Services included a dual left turn lane and a shared through-right lane on northbound Caldwell Road. Traffic simulations showed that a dual left turn will increase the capacity and decrease the queue lengths at the intersection for the northbound left turn from Caldwell Road and the southbound left turn from Dorothea Drive. The queue length and delay for the northbound through movement from Caldwell Road will increase slightly but the southbound through queue length and delay will decrease. The increase in delays is primarily due to the required changes in signal timing and phasing from protected-permissive to protected phasing for the new dual left turn lanes. A protected-permissive phase means the left turn movement is protected during the green arrow and permitted; provided they yield to oncoming traffic and pedestrians, during the solid green indication. A protected phase means vehicles have a dedicated left turn arrow and are not permitted to make turns on the solid green indication. The dual left turn lanes provide more capacity; more vehicles are able to go through the intersection on a green light, however the protected phasing means there is a longer time between greens. The initial design does not require property acquisition because the road can be widened to allow additional traffic lanes and sidewalks without encroaching on private property. The cost estimate for option 1 is \$460,000 which includes the dual left turn lanes and signal upgrades.

Concerns were raised by the local business community through their local Councillor about the lack of a dedicated right turn lane on northbound Caldwell Road at Portland Street/Cole Harbour Road. The perception is that without the provision for a right turn lane, motorists will find it easier to turn left onto Portland Street and shop in the Dartmouth area rather than in Cole Harbour. Due to these concerns, Traffic Services analyzed changing the lane configuration on northbound Caldwell Road to left turn lane, shared left-through lane and a right turn lane. Because one of the left turn lanes was shared with the through movement, a split phase traffic signal operation is required. Split phasing would allow eastbound and westbound traffic on Cole Harbour Road/Portland Street to function as it does today, but it would force northbound traffic on Caldwell Road and southbound traffic on Dorothea Drive to operate separately; all northbound traffic would get green while southbound traffic is red, then southbound would get green as northbound gets red. Split phasing at this intersection increases the delay and queues to unacceptable levels of service and this design was not pursued further.

Traffic Services requested that Design and Construction prepare additional options which included a separate right turn lane on northbound Caldwell Road at Portland Street/Cole Harbour

Road in addition to the dual left lanes required by Traffic Services. Design and Construction presented two options; option 2 without property acquisition and option 3 that would require approximately 120m² of private property.

Option 2 is able to facilitate a separate through lane and right turn lane because the widening occurs on the west side of the intersection which is property already owned by HRM. While option 2 does not require property, it is not recommended because the through lane on Dorothea Drive does not line up with the receiving lane on Caldwell Road because all the lanes on Caldwell Road are now skewed to the west. The construction estimate for option 2 is \$580,000 which includes the dual left turn lanes, right turn lane and signal upgrades. The additional costs are due to granular and asphalt for the new lane, additional curb and retaining wall and two catch basin replacements.

Option 3 requires the acquisition of private property to facilitate the additional lane but does not cause the skewed lanes as in option 2. Additionally, the through lane on Dorothea Drive will now line up with the receiving lane on Caldwell Road. Because the time required for the property acquisition is unknown it is anticipated that construction would be delayed by at least one year. The construction estimate for option 3 is \$515,000 which includes the dual left turn lanes, the right turn lane and the signal, but does not include the property acquisition costs. Additional costs are due to granular and asphalt for the new lane, additional curb and retaining wall and one catch basin replacement.

In both option 2 and option 3 there are no significant changes to the intersection capacity or queue lengths over the initial design recommended by Traffic Services. The northbound through movement from Caldwell Road however, would operate with the same delay and queue lengths as it does today, which is an improvement over option 1.

	Caldwell Road Upgrades	Cost
Option 1	Traffic signal upgrades. Dual left turn, shared through-right turn lane, no property required	\$460,000
Option 2	Traffic signal upgrades. Dual left turn lane, through lane, right turn lane, no property required	\$580,000
Option 3	Traffic signal upgrades. Dual left turn lane, through lane, right turn lane, property required	\$515,000 + property costs

The cost estimates for all three options do not include the cost of the left turn lane from Caldwell Road to Hampton Green or the new sidewalk as those costs are the same for all three options.

Pedestrians and transit users are being accommodated in all of the designs being proposed. New sidewalk will be constructed on both sides of Caldwell Road from Portland Street/Cole Harbour Road to Hampton Green. Also, a concrete bus pad will be constructed on the east side of Caldwell Road halfway between Hampton Green and Cole Harbour Road.

Adding bike lanes was considered from Cole Harbour Road to Hampton Green as Caldwell Road is a candidate bike route in the Active Transportation (AT) Plan. A preliminary estimate to include bikes lanes was completed and resulted in a cost of \$322,000. Given the significant cost, staff decided not to recommend proceeding for the following reasons:

- It is not a priority project. Priorities are being developed through the AT Plan Review and this project has never been suggested by the public, stakeholders, staff or the AT Advisory Committee.
- The revised AT plan is expected to focus on making connections, either to other bike routes, or to key local destinations. Through the review process it has been determined that some candidate bike routes are not achievable and should be removed, including Portland Street/ Cole Harbour Road, hence there is no future connection to be made at Portland Street/ Caldwell Road.
- The review has tentatively concluded that the key destination for the existing Caldwell Road bicycle lanes is the Portland Hills Transit Terminal and this can be accomplished north of Cherrywood Drive via the local street network.

Option 1 proposed by Traffic Services includes traffic improvements, accommodation for pedestrians, transit, motorists without the requirement for land acquisition. Staff is proceeding with the detail design of option 1 based on the cost-benefit analysis.

The preliminary design drawings for all options can be viewed in attachment two.

Streetscapes and Intersection Context

The Open Space - Cole Harbour Basin plan (OS:CHB) is being developed by Real Estate and Land Management staff. The purpose is to formulate a plan to help HRM with investment decisions in the public open spaces network. Open spaces have been defined as that public realm which includes our parks, as well as our streetscapes. Public engagement to date in the OS:CHB planning process revealed a desire to promote the identity, improve the connectivity, and manage the municipality's open space portfolio in the Cole Harbour Basin communities sustainably. The intersection of Portland Street/Cole Harbour Road/Caldwell Road/Dorothea Drive is an important intersection from a park, streetscape, and gateway perspective. Highlights of this intersection include:

- Forms part of the community boundary between Dartmouth and Cole Harbour.
- The street name changes from Portland Street to Cole Harbour Road.
- It includes one municipal owned park and open space on opposite corners.
- It includes the "Welcome to Cole Harbour" Gateway sign on the south east corner.
- The site includes a grassed lawn and planting bed and with the "Home of Sydney Crosby" marquis, it is a place for taking photographs.
- The south east corner is owned by the Shopping mall, SRF2 Colby Village Inc. of Toronto.
- The community sign and its "Home of Sydney Crosby" marquis is, through agreement, located on private lands.
- Visually, the impression or identity of the southeast corner when compared to the southwest and northeast corners, it is not balanced with the appropriate amount of landscaping treatments.

As per Council's direction staff undertook a preliminary investigation with respect to the possibility of land acquisition. Two land acquisition scenarios were investigated:

Scenario 1. Approximately 600 square metres be acquired in order to improve the landscaping, sign arrangement and help to create a pocket park on this corner. The parcel configuration would be triangular in shape with 35 metres of frontage on Cole Harbour Road as well as 35 metres of frontage on Caldwell Road. This configuration would require up to 14 parking spaces from the Colby Village Plaza property.

Scenario 2. Approximately 115 square metres be acquired to improve the landscaping and sign arrangement. This option would also be triangular in shape with frontage on Caldwell and Cole Harbour Roads. This option would not require any of the asphalt parking area.

Following staff investigation with respect to the land acquisition scenarios and initial telephone conversations with the property owner, it has been determined that the 14 parking spaces are not surplus to the mall requirements. The new owners are receptive to the idea of a continued arrangement and perhaps lease agreement to host the gateway sign and landscaping with Scenario 2, thus advancing the concept of a Gateway intersection to the Cole Harbour Basin.

Conclusion:

Traffic Services is proceeding with the initial design Option 1 which includes the required traffic improvements, accommodation for pedestrians, transit users and motorists that does not require land acquisition. This approach achieves all of the above traffic operational objectives, a good intersection alignment and the project can be completed this year.

FINANCIAL IMPLICATIONS

There are no financial implications associated with the presentation of this information. However it should be noted that investment in land acquisition and park development is outside the current scope of the Traffic Services intersection improvements of dual left turn lanes and sidewalk.

COMMUNITY ENGAGEMENT

Community engagement was not deemed to be necessary in this process because decisions were based on operational procedures.

ATTACHMENTS

- 1) Aerial View of Intersection
- 2) Preliminary Designs
- 3) Preliminary Gateway Land Requirements

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.html> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Stephen Dalrymple, Traffic Analyst, Traffic and Right of Way, 490-4859
 Robert Jahncke, Landscape Architect, Real Estate & Land Management, 490-4002

Report Approved by: _____
 Taso Koutroulakis, P.Eng., PTOE, A/Manager, Traffic and Right of Way, 490-4816

 Peter Stickings, Manager, Real Estate & Land Management, P&I, 490-7129

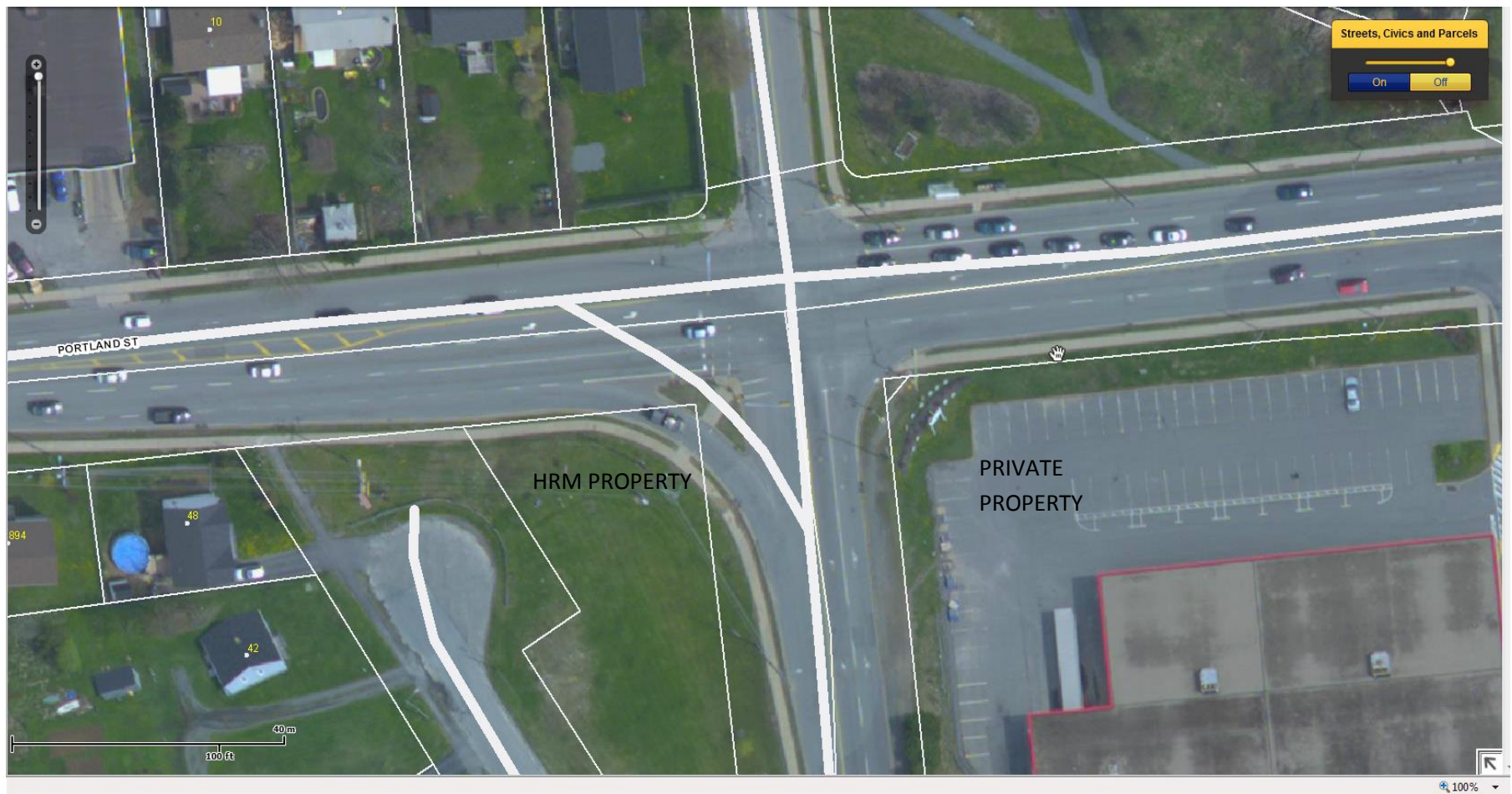
A-1 Aerial View of Intersection 1/3

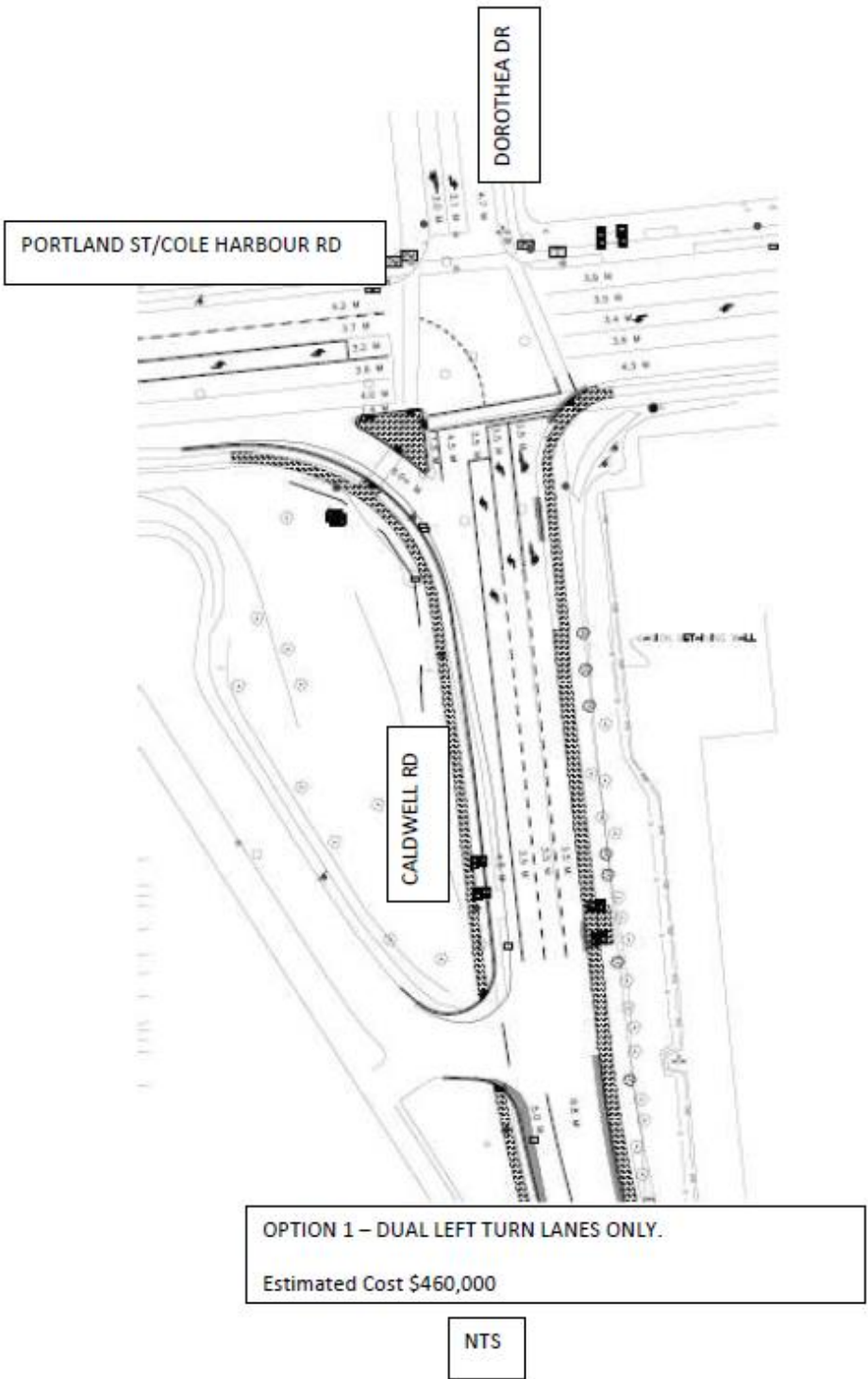


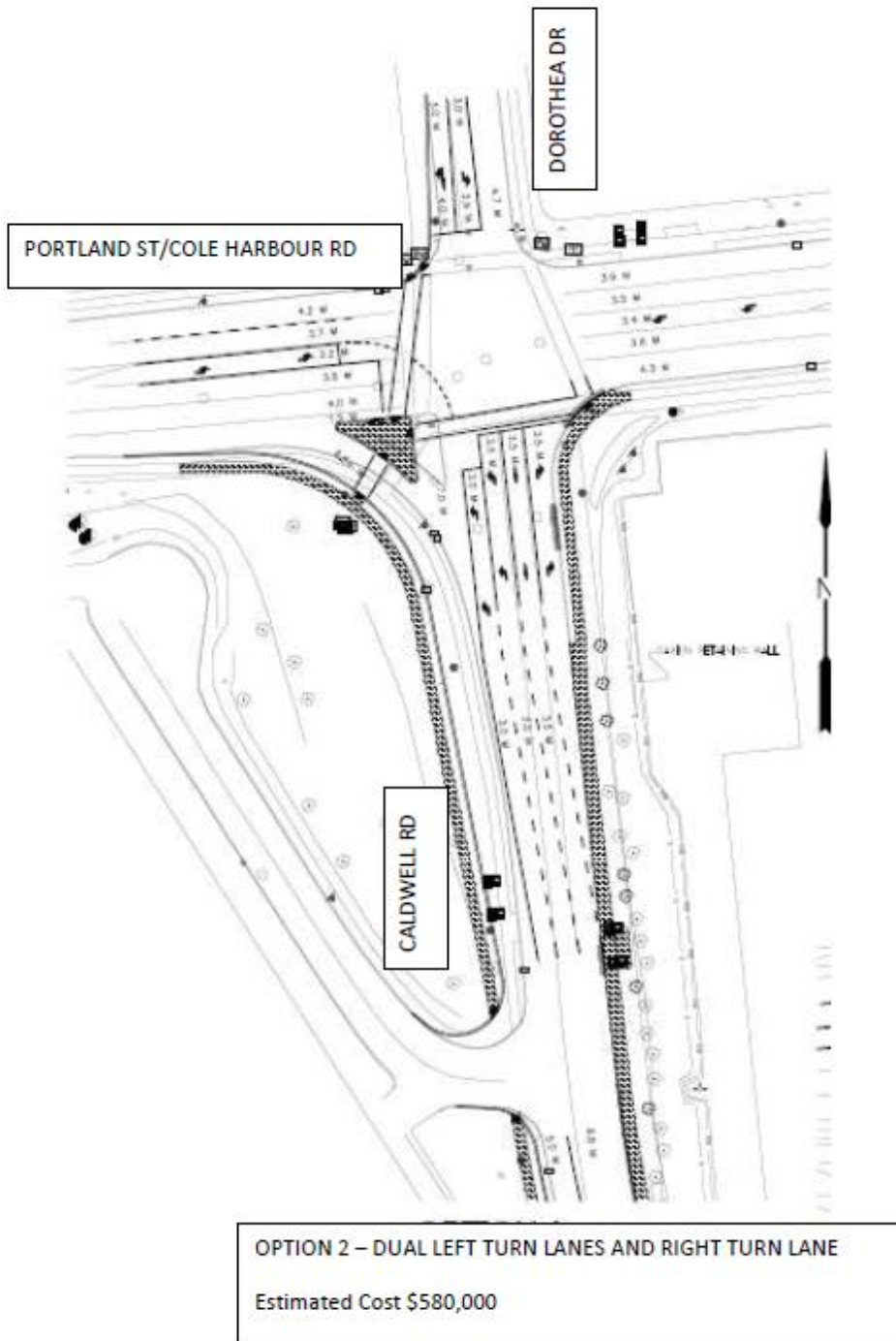
A-1 Aerial View of Intersection 2/3



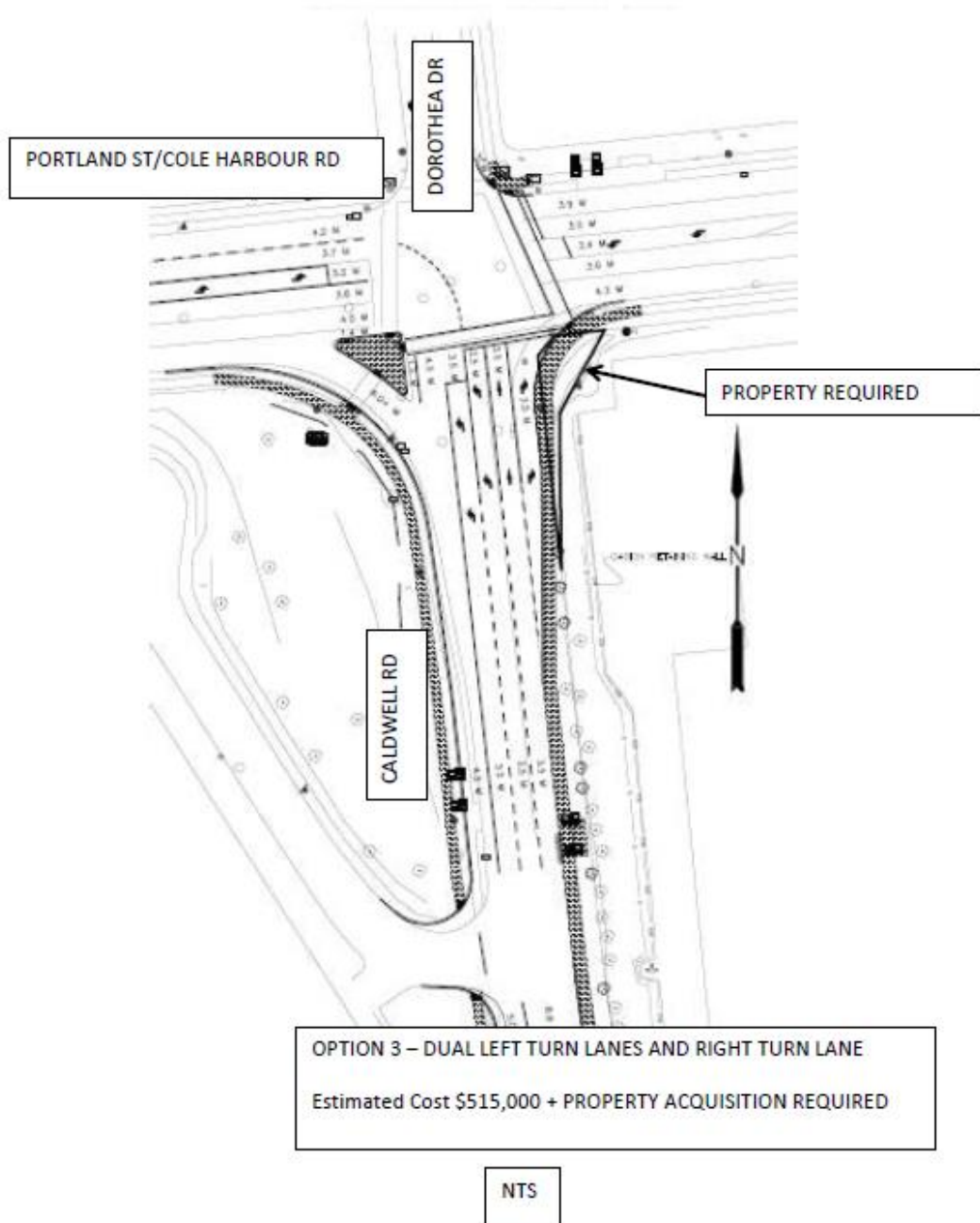
A-1 Aerial View of Intersection 3/3







NTS



A-3 Preliminary Gateway Land Requirements
Plan Showing Property Lines

