

Capital Line Planning - South Edmonton Residential Growth and Projected Transportation Demands

Recommendation

That the April 3, 2018, Urban Form and Corporate Strategic Development report CR_4524rev, be received for information.

Previous Council/Committee Action

At the May 23, 2017, Executive Committee meeting, the following motion was passed:

That the May 23, 2017, Integrated Infrastructure Services report CR_4524, be referred back to Administration to provide more detailed context on residential growth and projected transportation demands in South Edmonton in the coming 10 to 20 years including any information on forthcoming provincial land use plans, and a funding update, and return to Committee in First Quarter 2018.

Executive Summary

Administration has reviewed current and future land use and transportation plans, population growth and traffic volume projections, and planned transportation and facility infrastructure projects for Southwest Edmonton. In addition, Administration undertook scenario analysis supported by modelling to identify potential public investment. Analysis identified the benefits of extending the Capital Line (Century Park to Heritage Valley), the expansion of several Park and Ride facilities, and the initiation of Bus Rapid Transit through development of an enhanced bus service from Windermere to South Campus LRT station. These potential benefits include reduced vehicle hours and kilometres travelled in the Southwest, reduced CO2 emissions, and increased transit ridership city-wide.

Report

Background

The May 23, 2017, Executive Committee report (CR_4524) presented efficiencies, challenges, and risks associated with extending the scope of work for the current Capital Line LRT expansion project from Ellerslie Road to the south city limit. Analysis indicated that the extension of the Capital Line south of Ellerslie Road presented a potential \$50 million in savings over only completing the approved scope north of

Ellerslie Road. Savings were estimated based on economies of scale, reduced mobilization costs and reduced administrative costs associated with a single capital project as opposed to two. However, at the time Administration recommended against extending the scope of work due to the absence of a comprehensive land use plan for the former University Farm lands south of Ellerslie Road SW and the resulting uncertainty in finalizing the track alignment and station locations in this area. Discussion at the meeting, in part, focused on the need for population and traffic data to inform potential improvements to the transportation network in Southwest Edmonton and the timing to extend the Capital Line south of Ellerslie Road.

Land Use Planning and Road Network

Southwest Edmonton, including Riverbend, Terwillegar Heights, Windermere and Heritage Valley areas, is intended to accommodate approximately 215,000 people when fully built. Windermere and Heritage Valley are projected to be 69,000 and 92,000 people, respectively. Edmonton's proposed annexation (south of 41 Avenue SW) would add approximately 6,200 hectares of land to the Southwest quadrant of the city where population densities will be higher than in Windermere and Heritage Valley to meet the requirements of the Edmonton Metropolitan Regional Growth Plan.

Of the 60 stations along the approved LRT network, the future station at Heritage Valley Town Centre is one of a few that was planned to be Transit Oriented development (TOD) at the time the local Neighbourhood Area Structure Plan was adopted, and before the Transit Oriented Guidelines were approved. Many other stations were identified in already existing planned and developed areas. The future Heritage Valley Town Centre LRT station and alignment for the Capital Line LRT are strong organizing elements for the Heritage Valley Town Centre Neighbourhood Area Structure Plan, and drive relatively high population, housing unit, and job density projections for the area. The Plan encompasses a gross area of 118 hectares and is intended to accommodate nearly 12,000 people, a range of mixed use development with a net residential unit density of 149 dwelling units per hectare, and a district campus where a new Public High School is scheduled to be constructed in the next three years. By comparison, the adjacent Rutherford Neighbourhood, which encompasses a gross area of 220 hectares, has a net residential unit density of 38 dwelling units per hectare.

On May 30, 2017, the Government of Alberta announced \$400 million towards a new hospital south of Ellerslie Road and west of 127 Street. Administration collaborated with the Government of Alberta to initiate a Neighbourhood Area Structure Plan for the 130 hectare "Special Study Area" identified in the Heritage Valley Servicing Concept Design Brief. The Plan will identify the location of the new hospital, finalize station location and track alignment for the Capital Line LRT, and propose staging for land

development and servicing. Administration tentatively expects to bring the new Plan to City Council for consideration in 2019.

While land development in the Riverbend and Terwillegar Heights areas is largely complete, sizable portions of the planned transportation network throughout the four areas remain incomplete. Outstanding elements include:

- improvements along Terwillegar Drive between Whitemud Drive and Anthony Henday Drive,
- the 135 Street (Heritage Valley Trail) Interchange at Anthony Henday Drive,
- Capital Line LRT extension to 41 Avenue SW,
- the extension and upgrades of 170 Street south of Anthony Henday Drive to 41 Avenue SW; and
- large portions of the arterial road network, particularly in Windermere and Heritage Valley.

In addition to the above-listed projects, the interchanges at Anthony Henday Drive and 111 Street, Anthony Henday Drive and Terwillegar Drive, and Calgary Trail and Ellerslie Road have been identified as requiring improvements. The above analysis does not account for these improvements as their associated timing is not yet confirmed.

The road network in the proposed annexation area has not yet been planned, but will include major north-south connections at 127, 141, and 170 Streets drawing additional traffic flows north through the Windermere and Heritage Valley areas.

Recent Growth in Population and Traffic Volumes

Since 2001, Edmonton's population has grown by 270,000 to just over 932,000 - a one third increase in the city's total population. Between 2010 and 2017, an average of 83 percent of the annual growth in housing units occurred in developing areas of the city. Approximately 60 percent of annual new housing units in the city over the past decade were built in the Southwest and Southeast sectors. At current rates of growth, Administration estimates the supply of planned low density residential land in the Southwest will likely be exhausted by 2030. In part, this rate of growth supports Edmonton's case to annex portions of Leduc County.

Between 2015 and 2030, Southwest Edmonton and the proposed Southwest annexation area are expected to attract up to 85,000 more residents and up to 17,000 more jobs (see Attachments 1 and 2).

From 2010 to 2015, traffic counts along two segments of Anthony Henday Drive between Calgary Trail to Terwillegar Drive, grew from 34,000 - 53,000 vehicles per day

in 2010, to 85,000 - 91,000 vehicles per day in 2015. The Government of Alberta is responsible for Anthony Henday Drive and recently announced the allocation of design funds to widen the roadway from four to six lanes from west of Highway 2 to Whitemud Drive.

Traffic counts along Terwillegar Drive (comprising five road segments between Windermere Boulevard and Whitemud Drive) grew from 11,000 - 42,000 vehicles per day in 2010, to 38,000 - 44,000 vehicles per day in 2015.

Traffic counts along Ellerslie Road (comprising seven road segments between Calgary Trail and the river) grew from 1,300 - 21,000 vehicles per day in 2010, to 3,100 - 35,800 vehicles per day in 2015.

Cross referenced report CR_4227 indicates the intersection at Terwillegar Drive and 40 Avenue, using 2014 data, is congested during the AM peak hour and is operating within a reasonable level of service in the PM peak hour. However, as summarized in Attachment 3, observations for that assessment indicate that significant queuing occurs during the PM peak hour as well. The 2015 traffic count data presented in CR_4227 indicate Terwillegar Drive north of 40 Avenue carried in the order of 44,000 vehicles per day, which exceeds the volume threshold guidelines for a 4-lane divided arterial. As per the operational review program for signalized intersections, Administration will update intersection signal networks for the Windermere and Ellerslie areas in 2018.

Transportation Network Assessment and Evaluation

Administration prepared Attachment 3 to provide context for the Southwest relative to policies affecting the transportation network, and current growth and network conditions. It also includes an assessment of major transportation corridors through scenario evaluation with conclusions on potential improvements to the network.

Three potential scenarios for improving the movement of people and vehicles between Southwest Edmonton and Central Edmonton (such as the University of Alberta and Downtown) in the 10 year horizon are described.

Scenario 1 -Terwillegar Drive Improvements assumes:

- An interchange at Terwillegar Drive and 40 Avenue/Bulyea Road
- Improvements to the interchange at Terwillegar Drive and Whitemud Drive
- An interchange at Terwillegar Drive and Rabbit Hill Road

Scenario 2 - Capital Line LRT Extension assumes:

- Extension of the Capital Line LRT to approximately 20 Avenue SW (approximate location of the future Provincial hospital site)
- Development of Heritage Valley Park and Ride to its ultimate capacity of 1,900 vehicles (1,040 stalls currently funded)
- Development of Ambleside Park and Ride with a capacity for 600 vehicles.

Scenario 3 - Bus Rapid Transit assumes:

- An enhanced bus service connecting Ambleside transit centre and Leger transit centre to South Campus transit/LRT station
- Development of Heritage Valley Park and Ride with capacity for 1,200 vehicles (1,040 stalls currently funded) and shuttle bus service to Century Park LRT Station.
- Development of Ambleside Park and Ride with capacity for 600 vehicles.

Scenario Evaluation

Administration modelled the above scenarios and evaluated them based on City Council's draft strategic goals as well as changes in Vehicle Kilometers Travelled, Vehicle Hours Travelled, CO2 emissions, and increased transit ridership. Attachment 3 concludes Scenario 2, the extension of the Capital Line LRT, provides the most net benefits relative to the above metrics.

Conclusion

Scenario 2 provides the greatest net benefits relative to quality of life and environmental factors. Notwithstanding, all three scenarios have tangible benefits to local and regional populations and traffic flows. In particular, Scenario 2 combined with Scenario 3 has significant benefits. This combination allows enhanced bus service to operate along an alternate corridor from where the Capital Line extension would be constructed, providing an interim measure to relieve congestion and avoid the staging issues associated with implementing Bus Rapid Transit as a precursor to LRT along the same alignment.

Next steps

Administration will continue to pursue a partnership with the Government of Alberta to advance land use planning for the special study area lands south of Ellerslie Road as well as adjacent surplus lands in the Transportation Utility Corridor near the Heritage Valley Park and Ride.

The purchase of the land required to accommodate parking for 1,900 vehicles at the Heritage Valley Park and Ride and a stormwater management facility is funded and approved for Stage 1 construction (approximately 1,040 stalls.)

The Heritage Valley Park and Ride project has gone to tender with a closing date in March 2018. Construction is scheduled to start in May, with completion by the end of 2019. Should design changes be required based on further study and direction from Council, a change to this contract will be required.

Administration will review the the current plans for the Ambleside Park and Ride location. Given current land holdings at Ambleside, it is anticipated that a parking structure or land acquisition would be required to accommodate 600 stalls at this location. Design work would then need to be undertaken. Upcoming report CR 4054 Future Park and Ride Provisions is addressing the Park and Ride Partnership Pilot Program, and Administration will pursue opportunities for expanded Park and Ride in Ambleside within the context of that report direction.

Administration will pursue feasibility of the Bus Rapid Transit (enhanced bus service) scenario as a potential precursor to the LRT development (on an alternate and complementary route to LRT) and report back to Council with an evaluation of feasibility, order of magnitude of cost, and fit with Transit Strategy and other policy goals.

Arterial roadway improvements within the southwest transportation network will continue to be undertaken by the City of Edmonton, Alberta Transportation, and private industry, as outlined in Attachment 3.

The Capital Line South (from Century Park to Ellerslie Road) will have a construction procurement package ready by mid-2019. Timing of the actual procurement is subject to funding availability and prioritization by Council. Pending Council direction and/or revisiting the LRT prioritization study, the southern terminus of the package could be extended to include the hospital station and potentially additional stations in Heritage Valley Town Centre and Allard/Desrocher. This decision would be partly dependent on the availability of funding to complete this extension.

Budget/Financial

Funding to support Arterial Road Assessment improvement projects is identified within the Arterial Road Assessment Bylaw program. While most of the projects are funded through development, there are some City obligations identified within the program that will require Capital funding approvals.

Capital Funding of \$13.1 million was approved in the Fall 2016 Supplemental Capital Budget Adjustment to support design and construction for the 135 Street and Anthony Henday Drive South Ramps project, and discussions are ongoing to confirm developer

Arterial Road Assessment contributions to enhance the scope of the project to include Ellerslie Road widening between 127 and 135 Street.

Capital funding has been secured for the Terwillegar Drive concept planning study from the Infrastructure Planning and Design Composite profile and is currently underway (CM-99-0001).

The widening of Rabbit Hill Road between MacTaggart Drive and the Transportation Utility Corridor is funded through Capital Profile 18-66-2113 and planned for construction in 2019.

Capital Line extension from Century Park to Heritage Valley preliminary design update and the land use planning for the special study area in the Heritage Valley Neighbourhood Area Structure Plan has funding secured through Capital Profile 16-66-7018.

The Heritage Valley Park and Ride project has funding secured through the federal government's Public Transit Infrastructure Fund. The Land purchase is funded through Capital Profile 16-66-7006 and the Design and Construction of the park and ride facility is funded through Capital Profile 18-66-3514.

Further study of the Bus Rapid Transit scenario and design of the Ambleside Park and Ride are not funded.

Public Engagement

No public engagement activities specific to the preparation of this report were completed as no decision is being made at this time. However, public engagement related to elements of this report was conducted over 2017 as follows;

- The city-wide Park and Ride Strategy project conducted two surveys;
 - the first in March to gather information from Edmontonians about the current Park and Ride system and about how we should provide Park and Ride in the future; and
 - the second in September to understand citizen preferences for Park and Ride facilities.
- The Capital Line South Extension project:
 - conducted a survey during the summer to gather the public's understanding of the project, comments and concerns, and input on the preliminary design and potential changes to it;
 - held a number of pop-up events at locations along the alignment during the summer and early fall to allow residents an opportunity to provide their input;

- formed a Community Advisory Committee to collect feedback; and
 - gathered a total of 1,687 responses online, at the pop-up events and through hard copy submissions.
- On November 29, a joint public information session was held for Heritage Valley Park and Ride, Capital Line South LRT Extension and the 135 Street/Anthony Henday Drive Connection to provide attendees information and updates on the three projects. A total of 395 people attended the event and 109 responses were received for the event survey.

Corporate Outcomes and Performance Management

Corporate Outcome(s): The City of Edmonton has sustainable and accessible infrastructure			
Outcome(s)	Measure(s)	Result(s)	Target(s)
Infrastructure is in place to support residential densification and non-residential development	South Edmonton residential density (dwelling units per net residential hectare)	22.19	30-40
	South Edmonton population density (people per net residential hectare)	54.7	Increasing trend

Attachments

1. Projected Population Changes 2015-2030
2. Projected Employment Changes 2015-2030.
3. SW Edmonton Major Transportation Corridors Assessment

Others Reviewing this Report

- T. Burge, Chief Financial Officer and Deputy City Manager, Financial and Corporate Services
- C. Campbell, Deputy City Manager, Communications and Engagement
- D. Jones, Deputy City Manager, City Operations
- R. G. Klassen, Deputy City Manager, Regional and Economic Development
- A. Laughlin, Deputy City Manager, Integrated Infrastructure Services