



To: **Calgary Metropolitan Region Board** Date: **May 14, 2020**  
Attention: **Jaime Graves, P.Eng.** Project No.: **27313**  
Cc: **North Calgary Region Committee (NCRC), South & East Committee (SEC) Members**  
Reference: **Integration of NCRTS and S&ECRTS Studies**  
From: **Chris Delanoy, P.Eng., Michael Ge, P.Eng., PTOE, M.Sc.**

## 1.0 Study Background

In 2018-19, The City of Calgary, City of Airdrie, Rocky View County, City of Chestermere and Town of Cochrane together with Alberta Transportation undertook the North Calgary Regional Transportation Study (NCRTS). The intent of the study was to develop a consistent set of network priorities that reflect planned land use and growth, and to provide a common baseline for assessment of the regional transportation network. As the study was initiated prior to formation of the Calgary Metropolitan Region Board (CMRB), CMRB administration participated in the study in an observer capacity.

Following the NCRTS, the CMRB initiated the South & East Calgary Regional Transportation Study (S&ECRTS), which adopted a similar methodology and approach as the NCRTS to develop network priorities for the remainder of the CMRB's jurisdictional area. The S&ECRTS was scoped with the intent to be able to integrate the two studies to provide a complete regional baseline for the transportation component of the regional Growth and Servicing Plan, which is expected to be completed by the end of 2020. Technical review for S&ECRTS has been provided by the South & East Committee (SEC), a working group of senior administrative representatives from the CMRB, Alberta Transportation and eight of ten member municipalities including The City of Calgary, City of Chestermere, Foothills County, Town of High River, Town of Okotoks, Rocky View County, Town of Strathmore and Wheatland County.

In September 2019, the NCRTS was unanimously adopted by the CMRB Board and the Board also directed CMRB administration to consider merging the study outcomes and priority lists for both the NCRTS and S&ECRTS. Based on this direction, the final phase of S&ECRTS was adjusted to accommodate integration of the project recommendations and prioritization from the NCRTS. Administrative representatives of the remaining two member municipalities at the City of Airdrie and Town of Cochrane were re-introduced to the study process for the final two review meetings where individual project evaluations and prioritization were reviewed for both the S&ECRTS area and the integrated region as a whole.

This memorandum provides an overview of the integration process that was undertaken to combine the findings and recommendations for both the NCRTS and S&ECRTS in terms of land use, transportation and transit networks, and project prioritization.



## 2.0 Study Integration – Land Use

The regional transportation studies considered land use growth scenarios at two horizons: 2028 (10-year) and 2039 (20-year). Consistent with the NCRTS and the enabling regulations of the CMRB, the land use baseline used for the S&ECRTS was to include statutory plan areas approved within the region on or before December 31, 2017. It is understood that these assumptions and approvals are being reviewed as part of the regional Growth and Servicing Plan and could differ for future updates of these studies.

For S&ECRTS, all land use assumptions that had been made for the NCRTS were carried forward and used as a baseline for the new study, including updates in Airdrie, Calgary, Cochrane, Rocky View County, and Chestermere. Additional land use updates were then made for municipalities not included previously in the NCRTS or in areas of overlapping municipalities such as Calgary and Rocky View which were previously beyond the NCRTS study boundaries.

Table 2.1 below provides a summary of the resulting total population and employment assumptions for all municipalities in the CMRB’s jurisdiction, based on the final values used as inputs to the Calgary Regional Transportation Model (RTM).

Table 2.1 Population and Jobs for the Calgary Region

Municipality	Pop 2015	Jobs 2015	Pop 2028	Jobs 2028	Pop 2039	Jobs 2039
Airdrie	66,033	13,456	108,951	34,667	154,708	61,547
Calgary	1,178,492	691,029	1,598,710	930,511	1,910,998	1,087,173
Chestermere	17,807	2,319	35,738	13,501	53,220	24,751
Cochrane	26,320	6,807	37,217	13,616	49,534	15,542
High River	14,551	7,816	19,464	10,339	24,817	10,339
Okotoks	28,747	8,468	37,835	10,947	45,677	11,850
Strathmore	13,423	6,255	17,095	6,747	20,483	6,857
Foothills County	23,229	7,286	30,483	15,988	35,720	21,659
Rocky View County	43,136	13,053	75,366	38,999	104,059	61,642
Wheatland County*	1,000	421	1,548	1,583	1,788	2,343
<b>TOTAL</b>	<b>1,412,738</b>	<b>756,910</b>	<b>1,962,407</b>	<b>1,076,898</b>	<b>2,401,004</b>	<b>1,303,703</b>

Note\*: Wheatland County data only includes the population and jobs for the land area within the CMRB boundary.

The population for the Calgary Region as a whole was estimated to reach about 2.0 and 2.4 Million at the 2028 and 2039 horizons, respectively. Subsequent to scoping of these studies, the CMRB Board approved a set of Population Projections for use in the Growth and Servicing Plan. The projections estimated that the 2.0 and 2.4 Million regional population levels would be reached by approximately 2033 and 2043, respectively. This indicates that the NCRTS and S&ECRTS study horizons may be approximately 5 years “fast” relative to the new projections. Additionally, it is noted that there are some variances in population projections among individual municipalities, notably within Calgary, Airdrie, and Rocky View County. However, for the purposes of long-term regional planning and prioritizing the regional network needs, the differentials in population projections are considered to be within a range that would not fundamentally alter the study outcomes. As growth patterns will inevitably vary with time, future updates to these studies and to the network prioritization should consider the latest demographic information and policy guidance available at that time.



### 3.0 Study Integration – Network Recommendations

At the beginning of S&ECRTS, all transportation and transit network recommendations in NCRTS were carried forward to S&ECRTS and used as the initial baseline for network review. The prior recommendations of NCRTS were re-checked and validated throughout all stages of S&ECRTS to ensure the recommendations remained logical and consistent with the updated land use assumptions. The prior recommendations from NCRTS were largely verified and maintained except for those in the study interface area between Highway 1 (Trans-Canada Highway) and Glenmore Trail, as the land use changes in S&ECRTS had a direct effect on the network assumptions in those areas on both the east and west sides of Calgary.

Although the NCRTS took an initial look at network needs south of Highway 1 to Glenmore Trail, it did not reflect all land use updates provided in S&ECRTS. Therefore, S&ECRTS reviewed and updated recommendations in the same area to reflect the regional land use scenario and changes were highlighted and discussed with the SEC. Additionally, some project classifications in the NCRTS were updated where warranted by current information, for example if a previously-identified regional project was now funded and underway.

A complete scan of the CMRB jurisdictional area was also conducted to identify all planned provincial highway projects within the region, including projects for high load corridor implementation and gravel highway paving which are not necessarily growth-driven. Several other projects were also added in the NCRTS area in light of more recent planning information, including ongoing and future upgrades of Airport Trail in Calgary, upgrades to the Deerfoot Trail / Beddington Trail interchange, and the Highway 22 / Highway 567 roundabout north of Cochrane.

Transit network assumptions were reviewed and updated with the area municipalities, most notably The City of Calgary. Other updates included recognizing that Calgary’s MAX BRT system is now complete and in-service. Subsequent to initiation of S&ECRTS, the CMRB commenced a Regional Transit Study and the study findings will be documented in a Regional Transit Background Report. It is recognized that transit operational considerations have been deferred by the Intermunicipal Servicing Committee until after completion of the Growth and Servicing Plan and will not be included in the Regional Transit Background Report. Future users of the integrated NCRTS and S&ECRTS studies should refer to the Regional Transit Background Report and Growth and Servicing Plan for additional information, along with anticipated updates to Calgary’s Route Ahead Plan.

The final integrated regional network recommendations for transit and roadway projects are shown in Exhibit 1 and Exhibit 2. The master project list referenced on the maps is included in Appendix A and is summarized in the table below. In total, 355 candidate transit and roadway projects have been considered in the studies.

Table 3.1 Final Project Classification for the Calgary Region

S&ECRTS Classification	Corridor Projects	Interchange Projects	Transit Projects
Existing	---	---	6
Underway	19	25	1
2028 Non-Regional	18	1	3
2028 Regional	32	26	8
2039 Non-Regional	26	1	0
2039 Regional	29	19	6
Beyond 2039	83	43	9
<b>TOTAL</b>	<b>207</b>	<b>115</b>	<b>33</b>



## 4.0 Study Integration – Project Prioritization

For S&ECRTS, the Evaluation Framework developed through NCRTS was adopted and used for project evaluation and prioritization. The framework includes 18 evaluation criteria in 5 weighted categories, as summarized below.

Table 4.1 Evaluation Framework

Category / Weighting	Criterion
Regional Growth / Economy <b>30%</b>	Supports Priority Growth Areas
	Supports Multiple Municipalities
	Supports Investment / Expansion
	Supports Goods Movement
	Supports Employment Areas
Performance / Efficiency <b>30%</b>	VkmT (Vehicle Kilometers Traveled)
	Improve Existing Bottlenecks
	Safety Improvement
	Travel Time Savings
User Service / Connectivity / Choice <b>25%</b>	Network Connectivity
	Connecting Multiple Communities
	Primary Transit Network / HOV / Regional Transit
Environmental <b>10%</b>	GHG Emissions
	Land Preservation
	Impact on Environmental Features
Financial <b>5%</b>	Benefit / Cost Ratio
	Capital Cost
	Use of Existing Infrastructure

Through the advancement of S&ECRTS, minor clarifications were adopted for some of the scoring definitions, to allow for clearer and more objective application of the criteria in this and future studies. The most significant refinement among the scoring definitions was for the Travel Time Savings criteria under the Performance / Efficiency category. The prior scoring threshold for this criterion had been set at 1000 hours per day in NCRTS, however it was found that only one of the regional projects identified in S&ECRTS met this threshold. A scoring threshold of 400 hours per day was found to more reasonably balance the scoring outcomes for all projects in both study areas and was unanimously adopted by all study participants. This refinement along with the others did result in minor changes to the scoring for projects in the northern part of the region, in order to ensure that they were scored consistently with all projects in the region as a whole.

Due to time and modelling capacity limitations at the time, some projects in NCRTS had been scored with estimated performance values using a Regression Analysis. With the additional modelling time provided for S&ECRTS, these projects were modelled directly in order to obtain quantitative performance measures including travel time savings and greenhouse gas emission impacts. Based on this supplementary work, all 2028 horizon regional projects (north and south) have now been tested and measured in the Calgary Regional Transportation Model.



To ensure consistent application of evaluation criteria and confirm consensus from all municipalities, scores for NCRTS and S&ECRTS projects were reviewed at the final two SEC meetings, with all 10 municipalities in attendance along with AT and the CMRB. Based on this consistency review, ISL brought forward recommendations to modify 23 scores (out of more 1100) from the NCRTS. These suggestions were discussed, revised, and finalized where needed and the final scoring reflected all changes that were agreed by consensus of all municipalities, using the evaluation framework. The scoring maps for each criterion are included in Appendix B.

The integration of the NCRTS and S&ECRTS studies now provides one single combined list of transportation network recommendations and priorities for the Calgary region as a whole. The resulting 20 highest-priority regional corridor and interchange / intersection projects are summarized in Table 4.2 and Exhibit 3.

Table 4.2 Highest Priority Regional Corridor and Interchange / Intersection Projects (2028 Horizon)

Ranking	ID	Project	Score
1	C-78	17 Ave SE (84 St SE to Rainbow Rd) - Widen from 2 to 4 lanes	78.2
2	C-12	11 St / RR 11 / 8 St (144 Ave NE to 40 Avenue) - Widen from 2 lanes to 4 lanes	75.7
3	I-17	40 Ave / QEII Interchange	68.2
4	I-11	Hwy 566 / QEII Interchange	65.0
5	C-72	Hwy 1A (Hwy 22 to Gleneagles Dr) - Widen from 2 lanes to 4 lanes	64.5
6	C-73	Hwy 22 (Hwy 1A to Twp Rd 264) - Widen from 2 lanes to 4 lanes	64.2
7	C-26	Hwy 566 (Range Rd 15 to QEII) - Widen from 2 lanes to 4 lanes	64.0
8	I-98	Glenmore Tr SE & Deerfoot Tr - Upgrade Interchange	62.0
9	I-37	Stoney Tr / 11 St Interchange	61.3
10	I-35	Crowchild Tr / 12 Mile Coulee Rd Interchange	60.5
11 / 12	I-23	Stoney Tr / Airport Tr Interchange	59.8
11 / 12	I-40	Hwy 1A / Hwy 22 Interchange	59.8
13 / 14	C-19	QEII (Stoney Tr to Yankee Valley Blvd) - Widen from 6 lanes to 8 lanes	57.3
13 / 14	C-90	40 Ave (Kingsview Blvd to Range Rd 292) - Construct New 2-lane Arterial	57.3
15	C-71	Hwy 22 (Hwy 1 to Hwy 1A) - Widen from 2 lanes to 4 lanes	54.2
16	I-68	338 Ave & Hwy 2 - New Interchange	54.0
17	I-107	Glenmore Tr SW & 14 St SW - Upgrade Interchange	52.8
18	I-42	210 Ave & Macleod Tr - New Parclo Interchange	52.2
19	C-86	Peigan Tr / Township Rd 240 (84 St SE-Rainbow Rd) - Widen from 2 to 4 lanes	50.8
20	C-89	Memorial Dr (Garden Rd-Conrich Rd) - New 4-lane Arterial	50.5



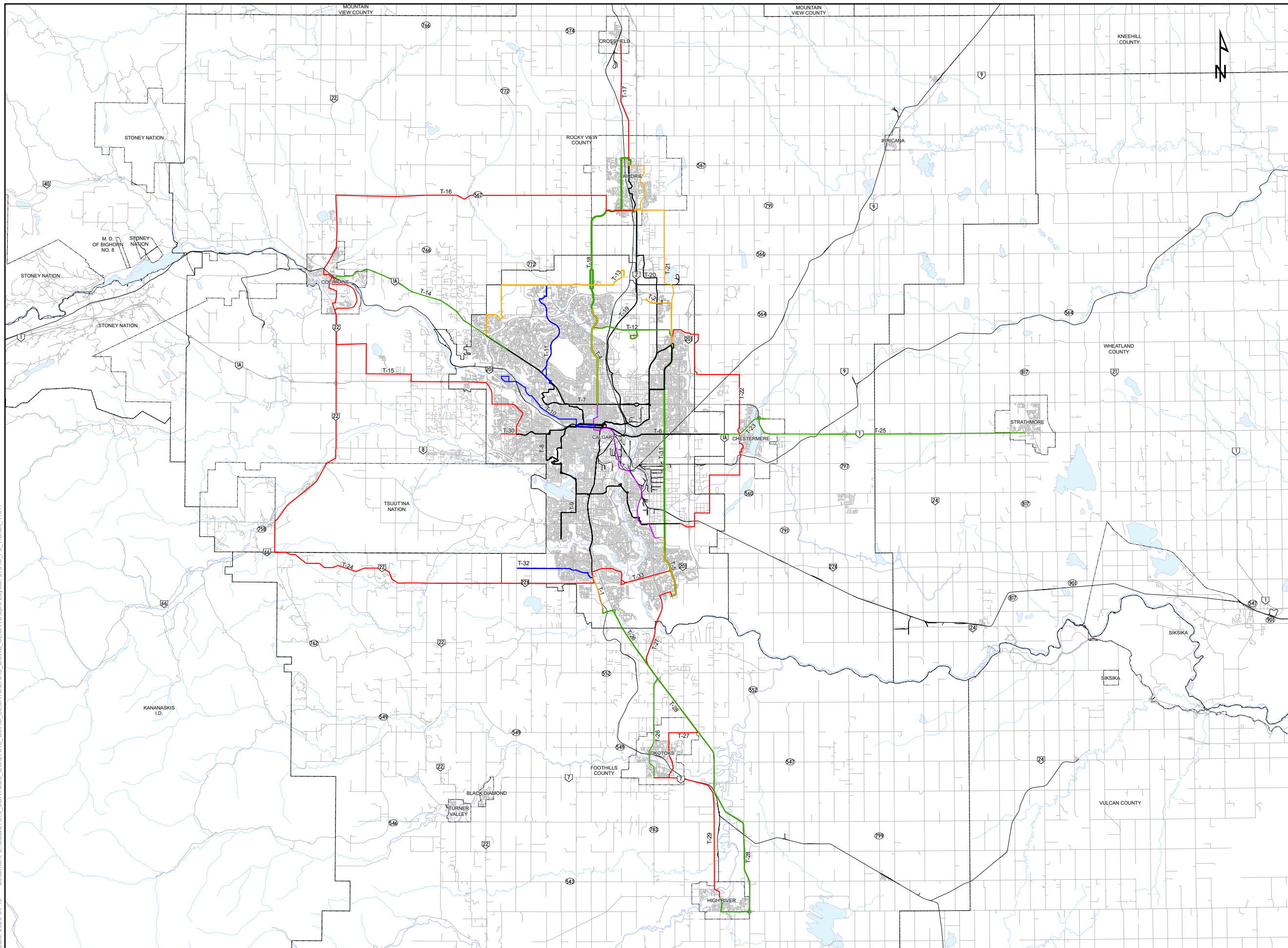
## 5.0 Recommendations for Additional Studies

Throughout both NCRTS and S&ECRTS, several key projects were recommended for further study. These are shown in Exhibit 4 and include:

- East Airdrie Bypass – corridor identification and functional planning study by Alberta Transportation to ensure long-term protection of this corridor, with The City of Calgary, Rocky View County, City of Airdrie and other communities north along QEII as key municipal stakeholders
- 88 Street Bypass – corridor identification and functional planning study by Alberta Transportation to ensure long-term protection of this corridor, with The City of Calgary, Foothills County and Town of Okotoks as key municipal stakeholders
- Peigan Trail East (Stoney Trail to Highway 791) – joint functional planning study among The City of Calgary, Rocky View County and City of Chestermere to confirm the common requirements for this intermunicipal corridor
- Dunbow Road Extension and Pine Creek Crossing – joint functional planning study among The City of Calgary and Foothills County to confirm common requirements for this alternate connection to south Calgary
- Highway 2 / Highway 2A weave area improvement south of De Winton – functional planning study by Alberta Transportation to identify requirements for this highway bottleneck location, with The City of Calgary, Foothills County and Town of Okotoks as key municipal stakeholders
- Highway 552 bridge over the Sheep River – joint functional planning study among Alberta Transportation, the Town of Okotoks and Foothills County to confirm the common requirements for this alternative Sheep River crossing

## 6.0 Conclusion

Findings for the NCRTS and S&ECRTS have been integrated into a single set of regional transportation network prioritization recommendations, as directed by the CMRB Board. Integration of the two studies was enabled by carrying forward the land use assumptions, transportation and transit network recommendations, and evaluation framework from the NCRTS for use as a baseline starting point for S&ECRTS. The adoption of additional evaluation framework refinements during S&ECRTS plus modest refinement of network recommendations and project evaluation to ensure consistent has allowed successful integration of the studies.



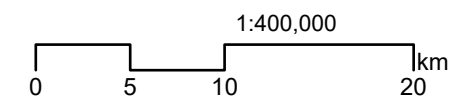
**Legend**

**Transit Classification**

- Beyond 2039
- 2039 Regional
- 2039 Non-Regional
- 2028 Regional
- 2028 Non-Regional
- Underway Now
- Existing

**Base**

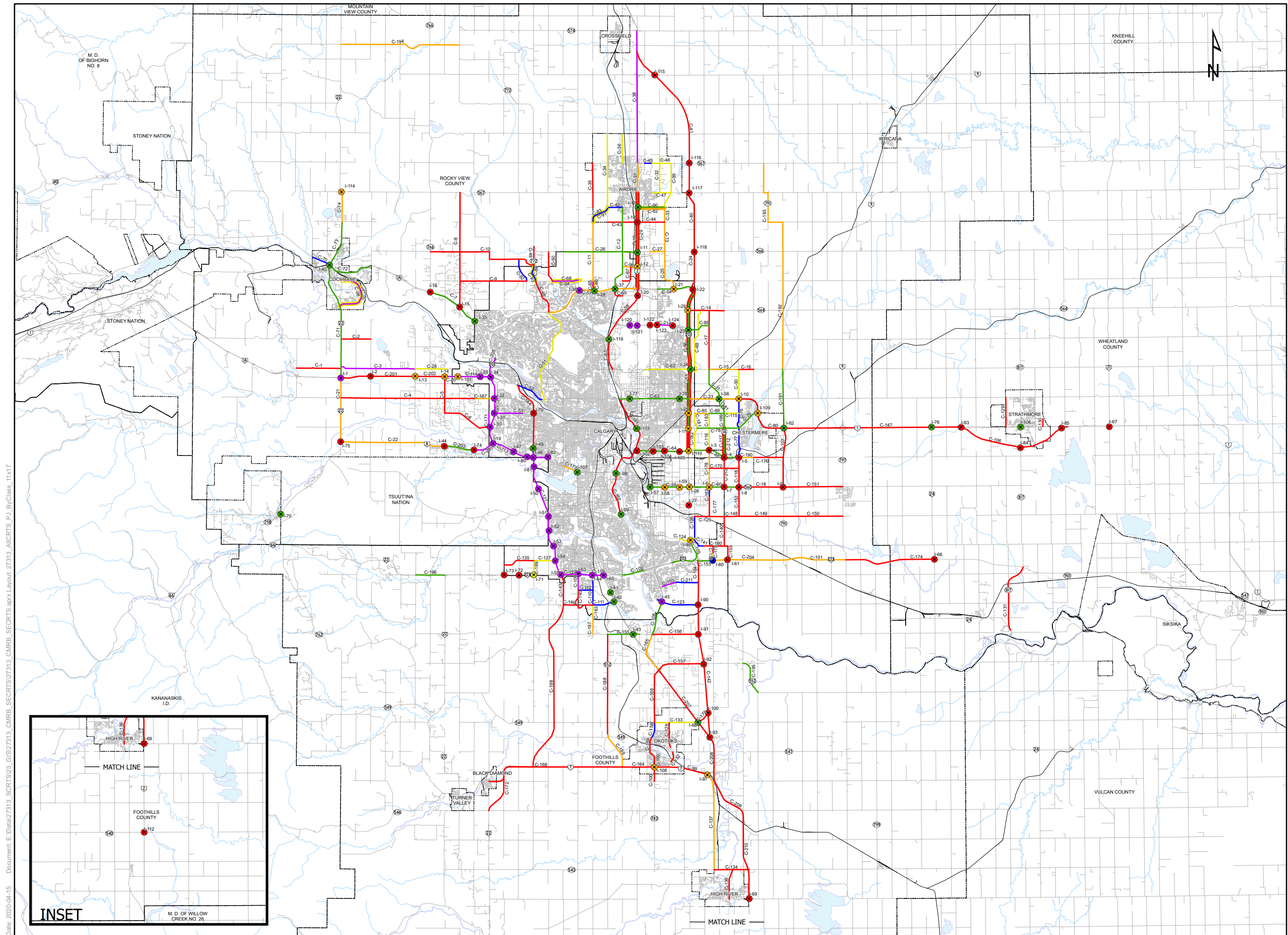
- Municipal Boundary
- Railway
- Road
- Hydrology



Coordinate System: NAD 1983 3TM 114

**EXHIBIT 1**  
**CLASSIFIED TRANSIT PROJECTS**  
 NORTH, SOUTH & EAST CALGARY  
 REGIONAL TRANSPORTATION STUDY





**Legend**

**Interchange / Intersection Classification**

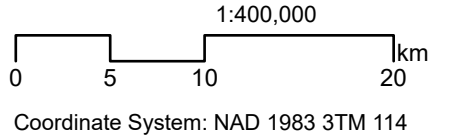
- Beyond 2039
- 2039 Regional
- 2039 Non-Regional
- 2028 Regional
- 2028 Non-Regional
- Underway Now

**Corridor Classification**

- Beyond 2039
- 2039 Regional
- 2039 Non-Regional
- 2028 Regional
- 2028 Non-Regional
- Underway

**Base**

- ▭ Municipal Boundary
- Railway
- Road
- Hydrology

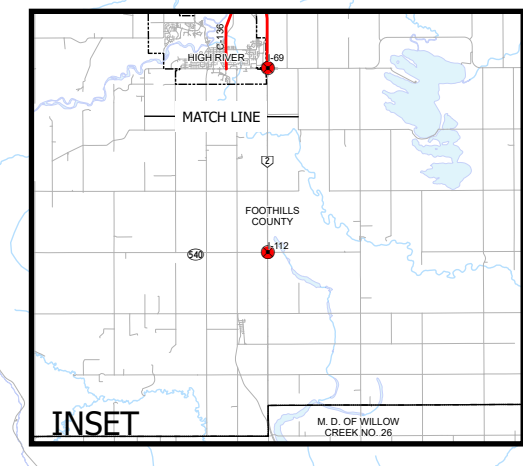


**EXHIBIT 2**  
**CLASSIFIED ROADWAY PROJECTS**

NORTH, SOUTH & EAST CALGARY  
 REGIONAL TRANSPORTATION STUDY

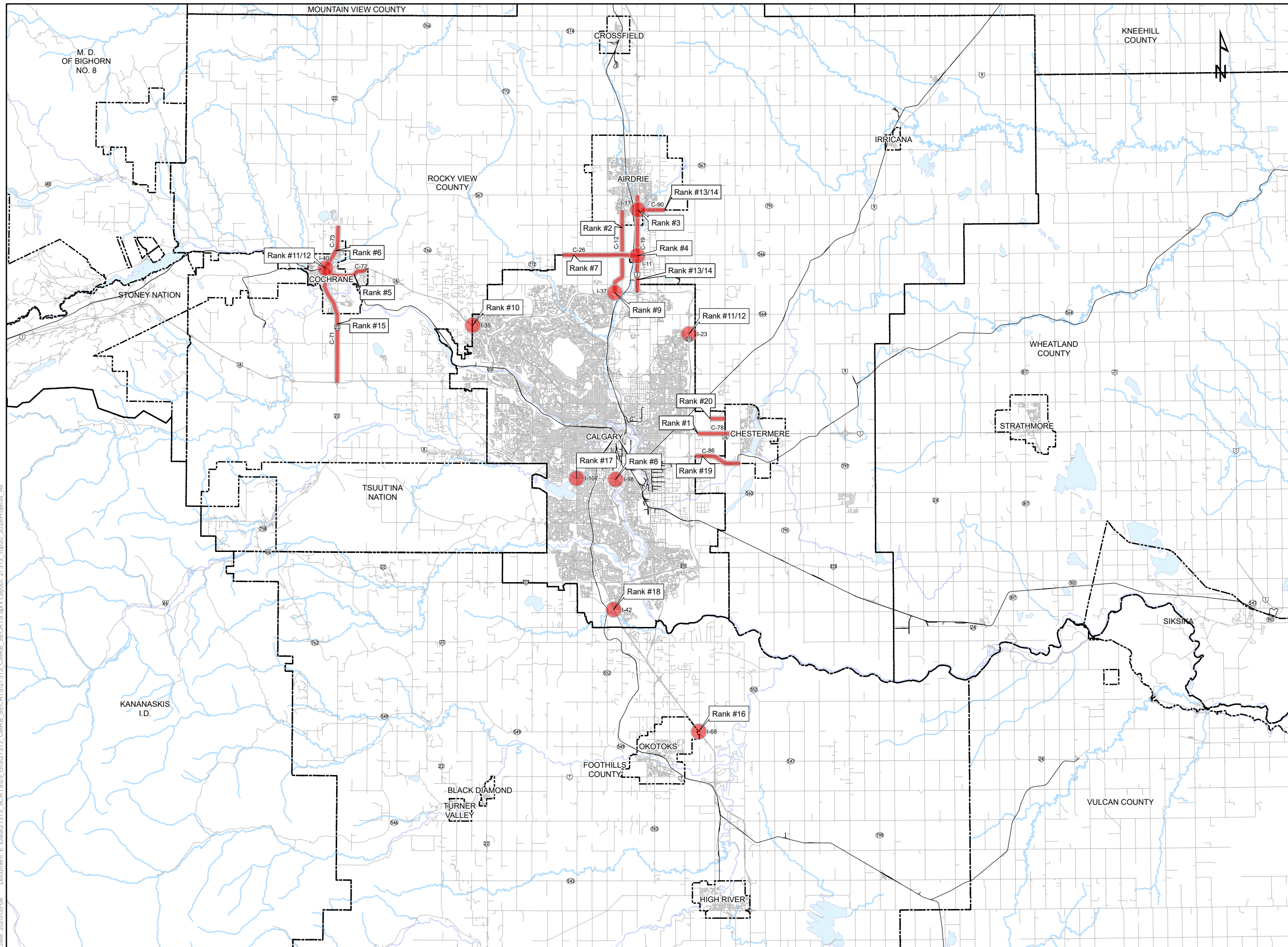


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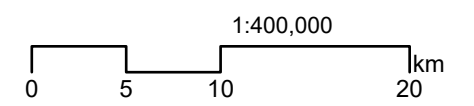


Data Credits: IHS, Government of Canada





- Legend**
- Interchange / Intersection
  - Corridor
- Base**
- Municipal Boundary
  - Railway
  - Road
  - Hydrology



Coordinate System: NAD 1983 3TM 114

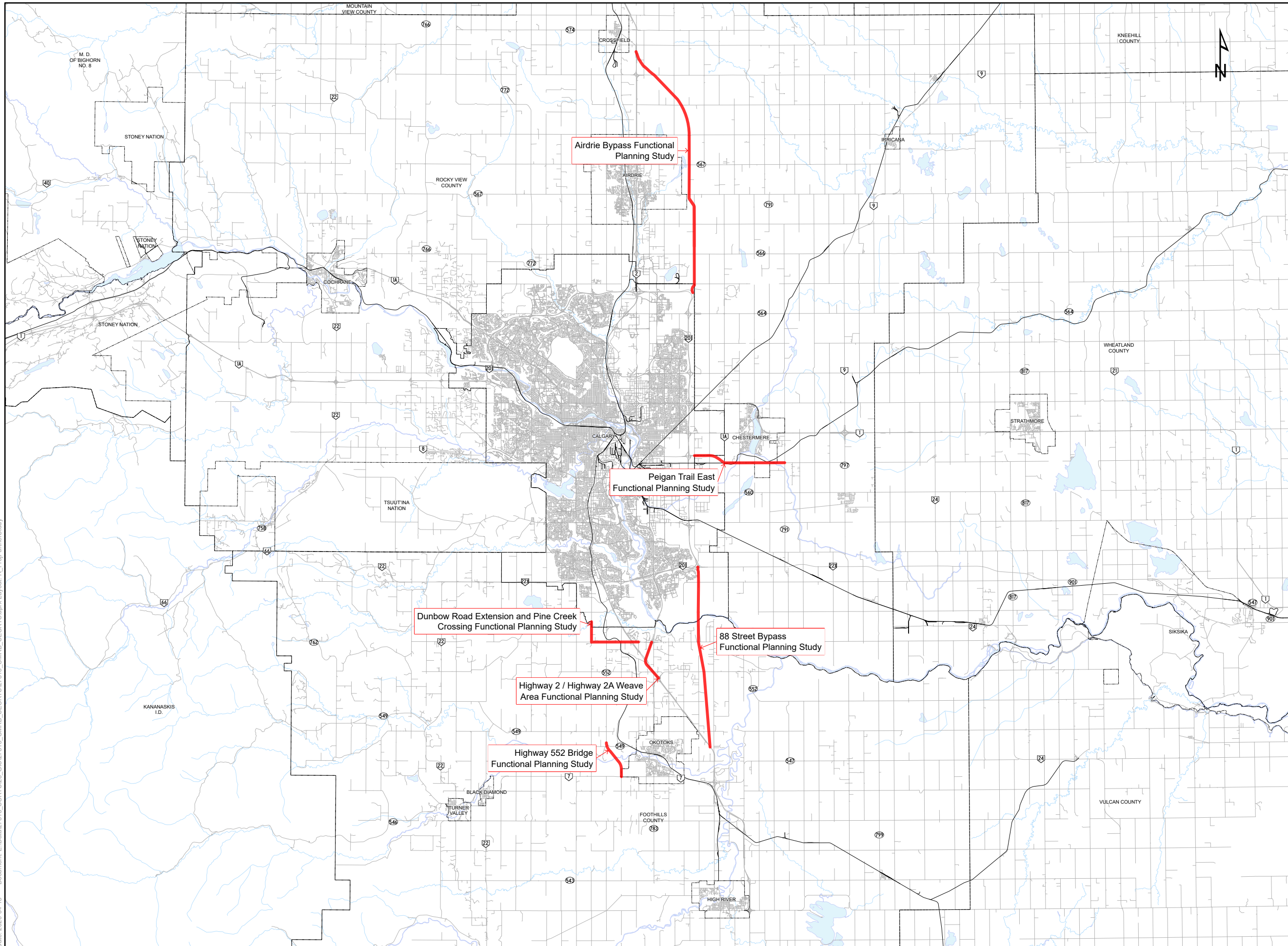
**EXHIBIT 3  
HIGHEST PRIORITY  
ROADWAY PROJECTS**

NORTH, SOUTH & EAST CALGARY  
REGIONAL TRANSPORTATION STUDY



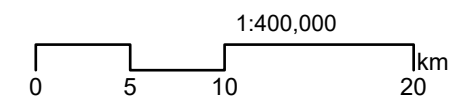
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**Legend**

- █ Projects For Future Study
- Base**
- Municipal Boundary
- Railway
- Road
- Hydrology



Coordinate System: NAD 1983 3TM 114

**EXHIBIT 4**  
**PROJECTS RECOMMENDED**  
**FOR FURTHER STUDY**  
 NORTH, SOUTH & EAST CALGARY  
 REGIONAL TRANSPORTATION STUDY



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