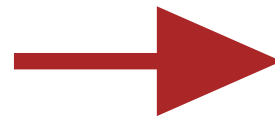
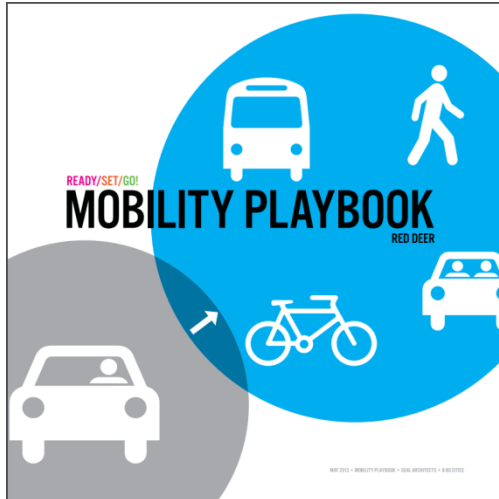


The Multimodal Transportation Index

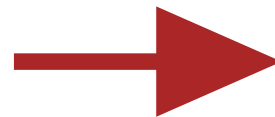
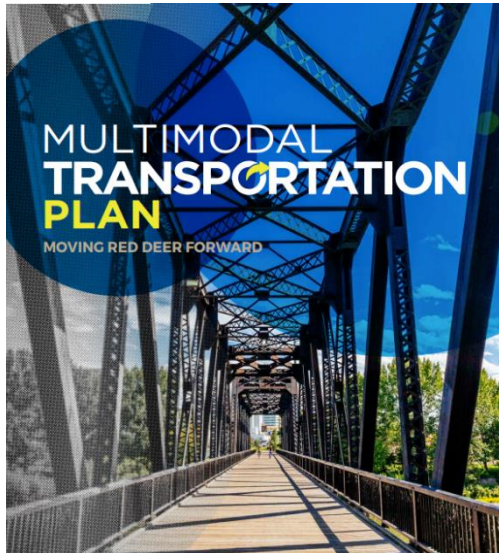


Niki Burkinshaw, P.Eng.
Transportation Engineer

Context



Principles



Integrated Implementation



Context – Mobility Playbook



01. The overall quality of life

This was ranked as the most important aspect of living in Red Deer. This encompasses many things: time with family, nature and financial security.



02. Active living and recreation

Ranked as the second most important aspect of Red Deer life, the trails and the natural landscape are on Red Deer's doorstep.



03. Economy

As the third most important aspect of city life in Red Deer, the employment and affordability of the city is at the centre of what makes it great.



PLAY 1 PUT PEDESTRIANS FIRST

PLAY 2 CREATE A BALANCED NETWORK

PLAY 3 TIE LAND-USE AND MOBILITY TOGETHER

PLAY 4 MAKE TRANSIT PART OF THE JOURNEY

PLAY 5 CONNECT THE TRAILS

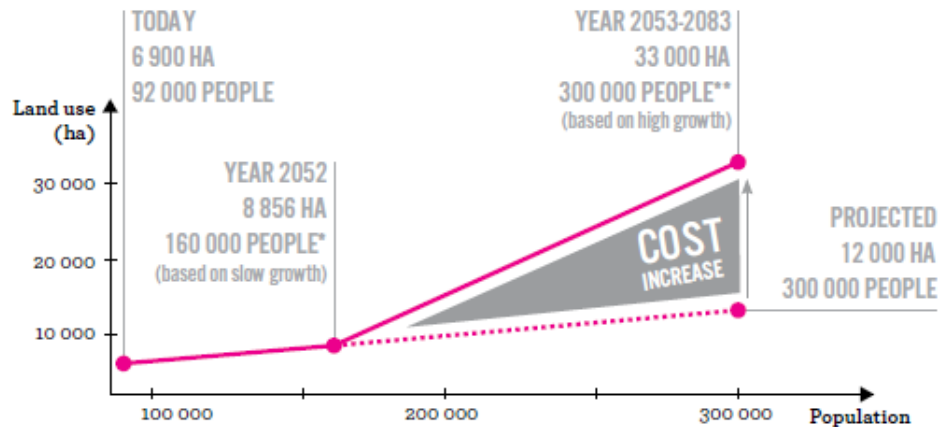
PLAY 6 NURTURE A CULTURE OF CHANGE

Context – Multimodal Transportation Plan

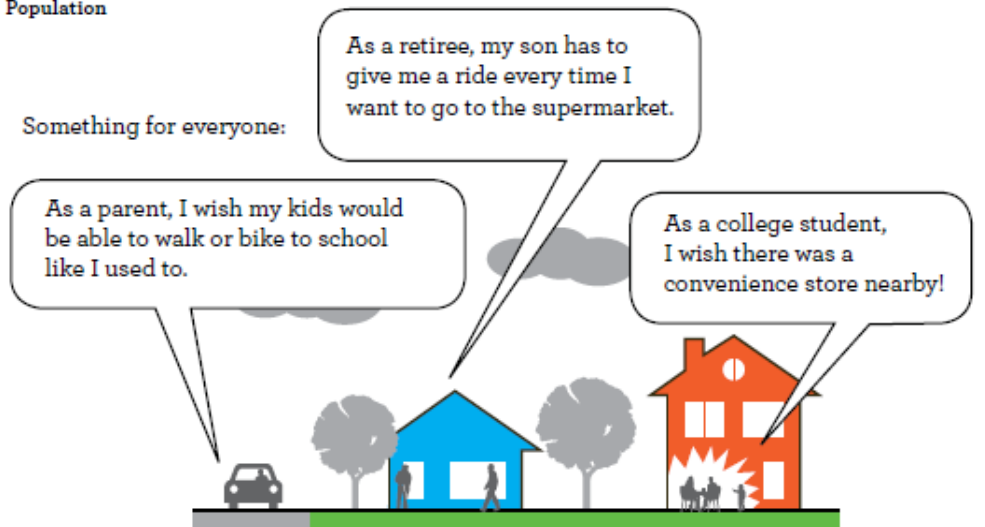
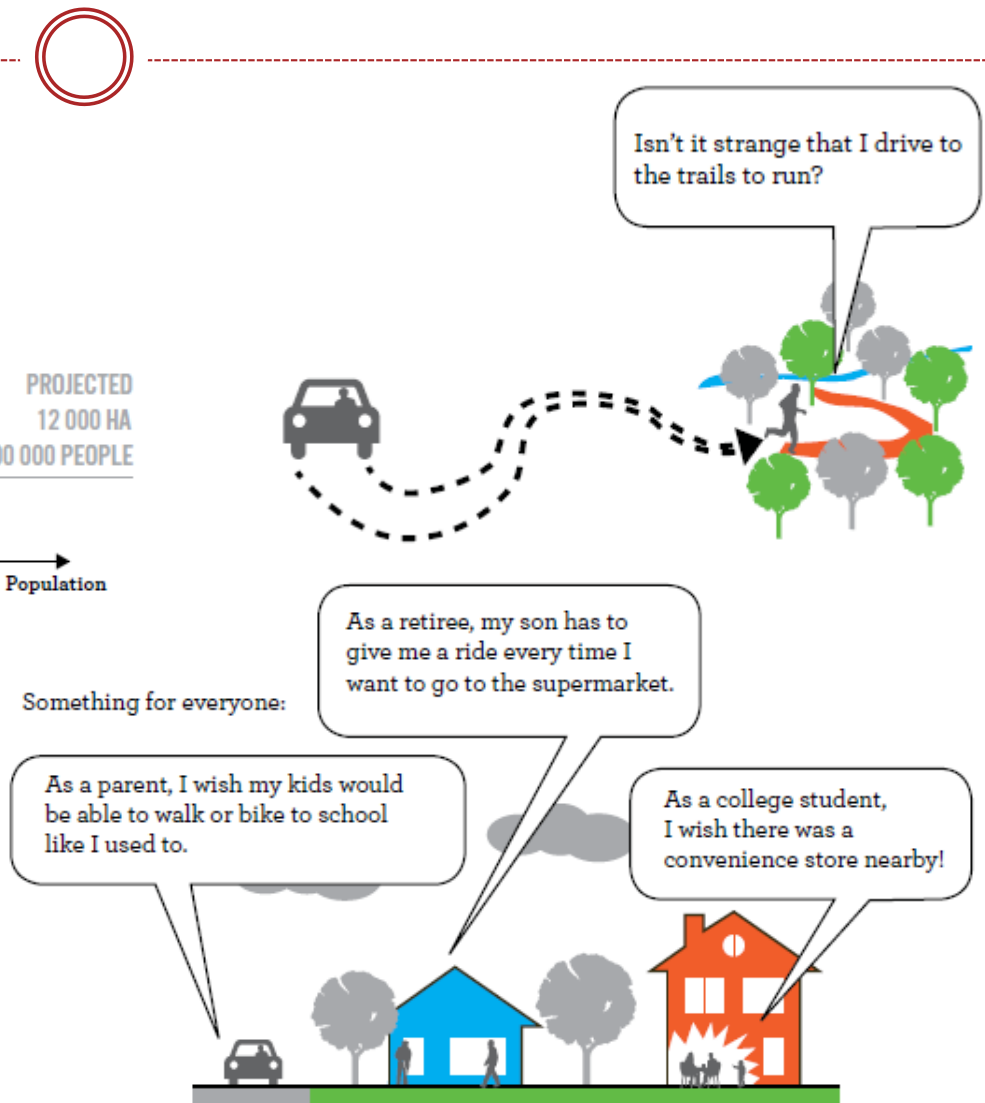


- Council approved the MTP in July 2017.
 - Overall goal is to improve the safety, quality, comfort & connection of all modes, and provide more choice for citizens.
 - The plan pulls together the City's past work on multimodal transportation & is the foundation for how we will improve our transportation network today, tomorrow & in the future.
- Key features of the MTP:
 - Outcomes specific to each mode
 - Priority routes for each mode
 - A new tool to measure and evaluate the walking, cycling & transit experience – the Multimodal Transportation Index (MTI)

Risks of Business as Usual



...to Economy
...to Quality of Life
...to Active Living and Recreation



Why do this?



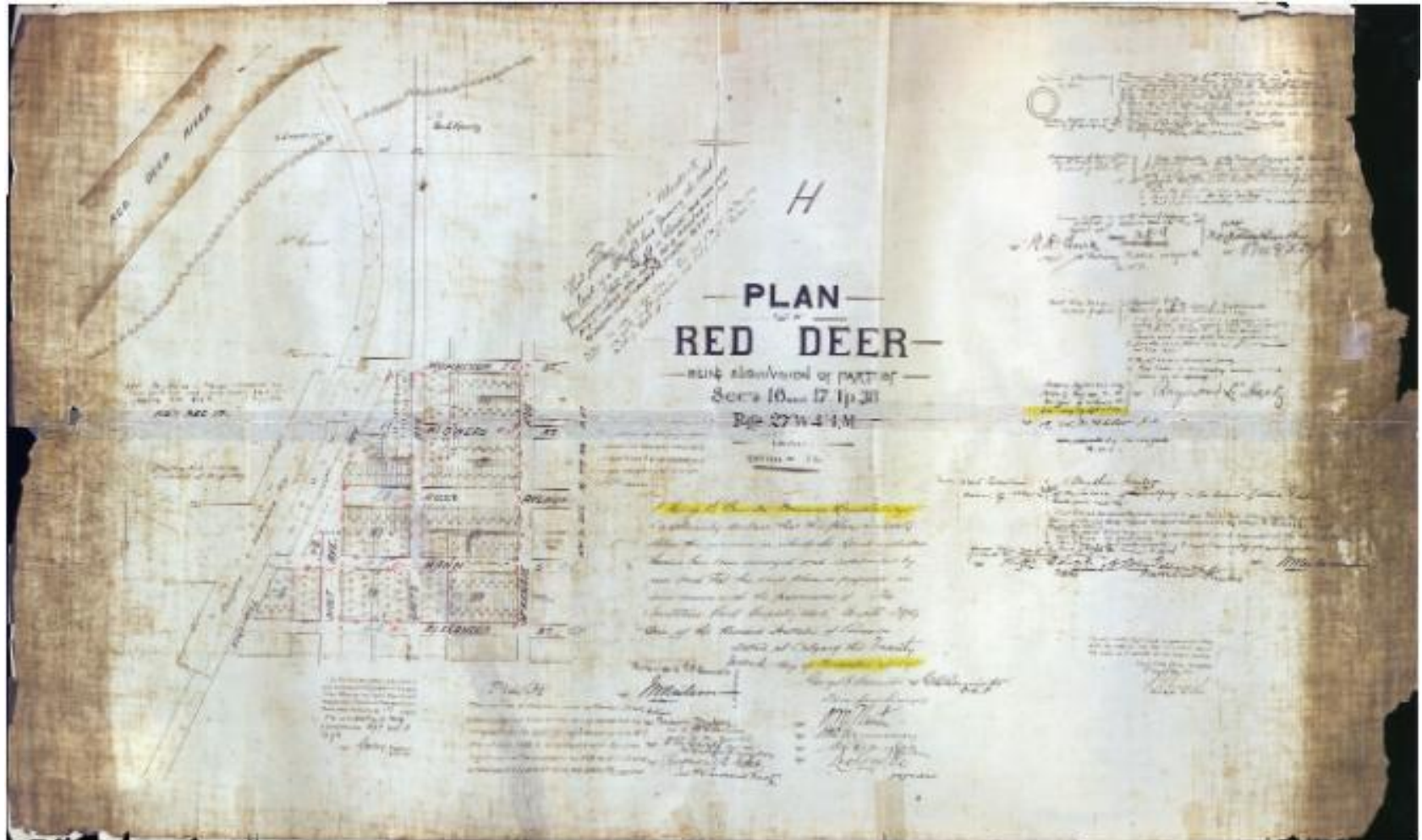
Why do this?



Why do this?



Why do this?

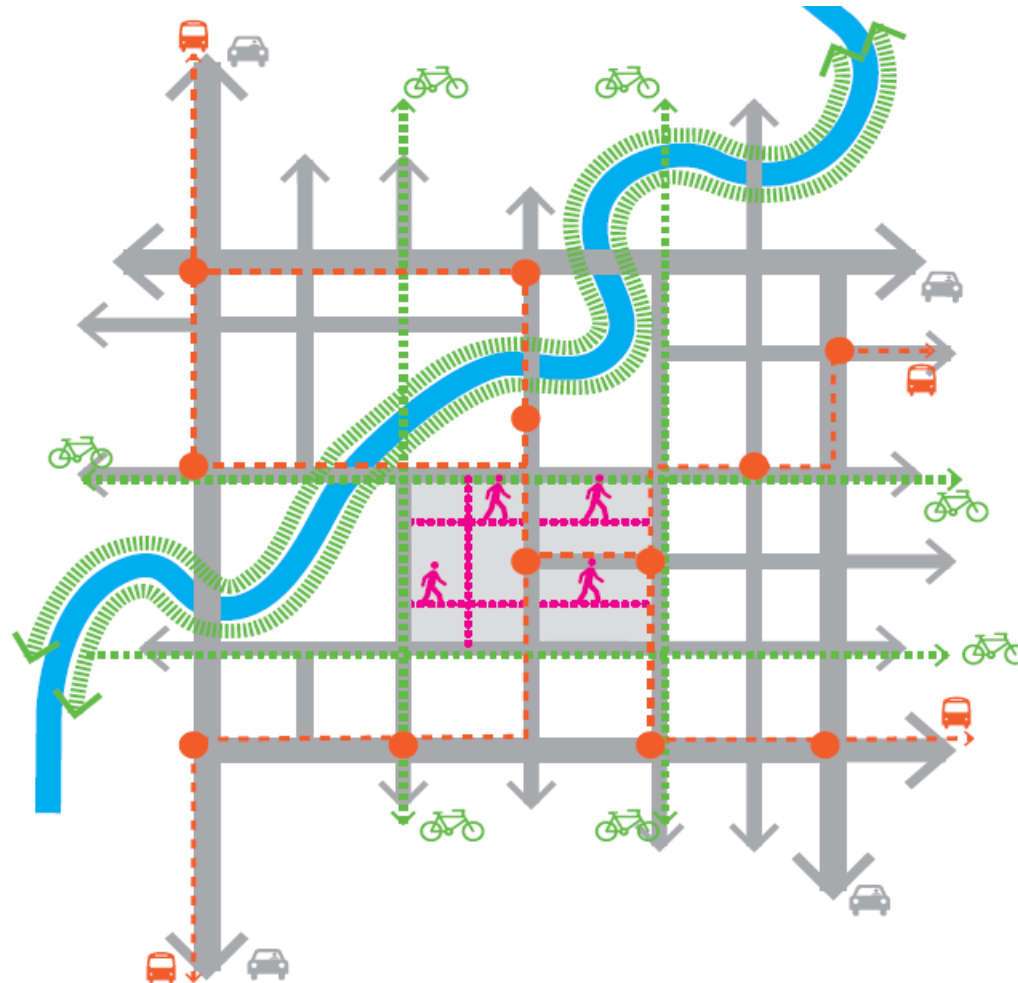


Multimodal Transportation Index



- A **tool** that applies the criteria from the MTP – safety, connection, comfort & quality – when looking at each of the modes (motor vehicle, active transportation & transit).
 - The scores in the MTI tell us about where we are now, and helps us measure improvements as we move forward.
- Applying the tool, Administration can assess what projects should be completed and what elements could be included to improve the user experience for each of the modes.

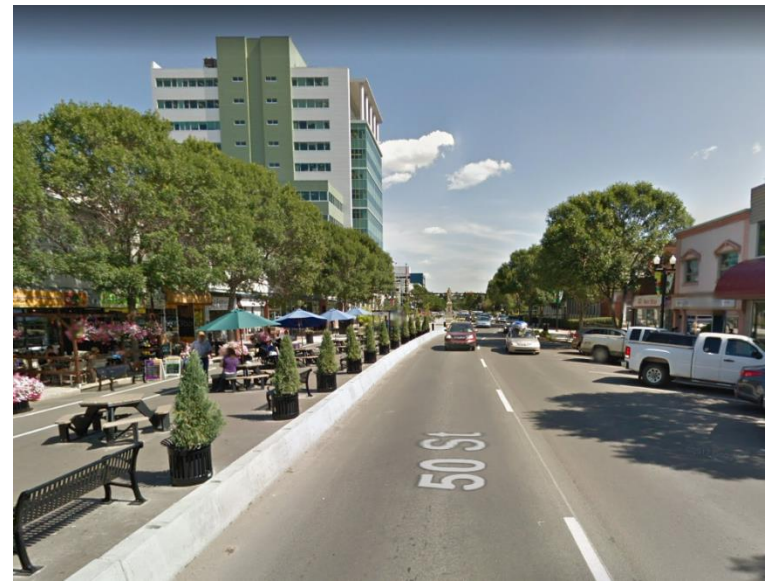
Goal: A More Balanced Network



Build the Network



Build the Network



Elements Influencing Design



SPECTRUM OF MTI ELEMENTS

MOTOR VEHICLES



ACTIVE TRANSPORTATION



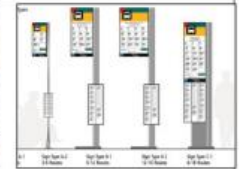
TRANSIT



SAFETY



CONNECTION



COMFORT



QUALITY



What Does the MTI Look Like?



File

Home

Insert

Page Layout

Formulas

Data

Review

View

Bluebeam

Normal

Page Layout

Page Break Preview

Custom Views

Full Screen

Ruler

Formula Bar

Gridlines

Headings

Zoom

100%

Zoom to Selection

New Window

Arrange All

Freeze Panes

Split

Hide

Unhide

View Side by Side

Synchronous Scrolling

Reset Window Position

Window

Save Workspace

Switch Windows

Macros

A1

fx

Location:

1

Location:

Neighbourhood XYZ

2

Multimodal Transportation Index - MTI

3

4

5

Transit MTI

Elements

Scoring

Score

Weight

6

Quality

Direct Routing

>1/2 car travel<5; <5m0

2

5

7

8

Comfort

Frequent Arrival/Low Headway

15 min +5; 20 min + 3 <30+0

1

5

9

10

11

Connection

Connections to destinations

>>3 destinations + 2<3+1; 1=0

1

5

12

13

Timetable information

yes=1, no=0

0

14

Vagind to stop

yes=1, no=0

0

15

Sidewalk or trail connection

yes=1, no=0

0

16

Bike Lookup

yes=1, no=0

0

17

18

Safety

Passenger amenities at stop

1

7

19

20

Universally Accessible

yes=1, no=0

0

21

Well lit

yes=1, no=0

0

22

garbage bins

yes=1, no=0

1

23

24

25

26

27

28

29

30

31

32

33

34

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38

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40

41

42

43

44

45

46

47

48

49

5

Pedestrian MTI

Elements

Scoring

Score

Weight

6

Quality

Surface quality

Excellent=4; Trip Hazards=0

4

4

7

8

Comfort

Sidewalk width

>2x1; <1=0

4.5

4

9

10

Location of sidewalk

buffered=1, no=0

1

11

Amenities

12

benches

yes=1, no=0

1

13

lighting

yes=1, no=0

1

14

art

yes=1, no=0

0

15

vaginding

yes=1, no=0

0

16

garbage bins

yes=1, no=0

1

17

18

19

20

21

22

23

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37

38

39

40

41

42

43

44

45

46

47

48

49

5

Cycling MTI

Elements

Scoring

Score

Weight

6

Quality

Surface quality

Excellent=5, unrideable=0

3

4

7

8

Comfort

Bike facility width

>3x1; <1=0

4.8

6

9

10

Location of bike facility

buffered=1, no=0

1

11

Amenities

12

Intersection lighting

yes=1, no=0

1

13

vaginding

yes=1, no=0

0

14

garbage bins

yes=1, no=0

1

15

Bike Lookup

yes=1, no=0

1

16

17

18

19

20

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22

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41

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44

45

46

47

48

49

5

Trail MTI

Elements

Scoring

Score

Weight

6

Quality

7

8

Comfort

9

10

11

12

13

14

15

16

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MTI SCORES

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MTI SCORES

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MTI SCORES

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MTI SCORES

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MTI SCORES

6

7

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11

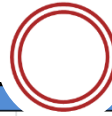
12

13

14

15

Looking a Little Closer...



Pedestrian Sidewalks and Multiuse Trails					
Pedestrian MTI	Elements	Scoring	Score	Weight	
Quality			4	4	16
	Surface quality	Excellent=4; Trip Hazards=0			
Comfort			4.5	4	18

Comfort			4.5	4	18
	Sidewalk width	>2=1; <1=0	0.5		
	Location of sidewalk	buffered=1, no=0	1		
	Amenities				
	benches	yes=1; no=0	1		
	lighting	yes=1; no=0	1		
	art	yes=1; no=0	0		
	wayfinding	yes=1; no=0	0		
	garbage bins	yes=1; no=0	1		

	walkscore=100	80-100	0.55		
	Road between building and sidewalk	yes=0; no=1	1		
	Setback to building façade <8m	yes=1; no=0	1		
	Setback used for vehicle parking	yes=0; no=1	1		

Safety					69.76
	Intersection Crossings we				
	Universally Accessible to				
	Separation from cars by st				
	Ditch				

MTI SCORES

Highly unlikely people will walk here by choice

MTI SCORES

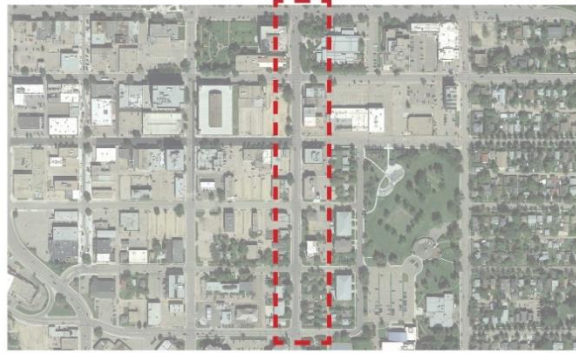
69.76

D

EXAMPLE ONLY

MTI in Use – Different Levels

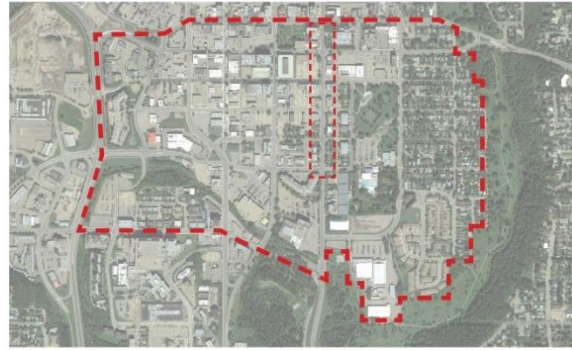
A Street - Micro



48 th Ave @ 50 to 45 Street

[illegible]

A Neighbourhood - Meso



Southern Downtown

City of Red Deer Level of Service Calculator		
Location:	South Edmonton	Score: 3 to 5
Metric and associated weight:	20 m long boulevard	
Level of Customer:	Resident directly on pavement or at least centre line	
Category:		
Sub-category:	Shelter quality	5
Quality:	Street lanes & location	4
Quantity:	Access	3
Quality:	Crosswalk quality	2
Quantity:	Intersection protection	2
Quality:	Signage / Weathering	2
Quantity:	Visual Frontage %	4
Time:	Per cent coverage	5
Coverage:	per cent coverage	5
Score:	Red	52 / 60
Category:		
Sub-category:	Lane presence	4
Quality:	Lane separation by barrier	4
Quantity:	Frontage signage	4
Quality:	Paved surface intersections	4
Quantity:	Weathering/damage/signs	4
Quality:	Bike lock-up	4
Quantity:	Good use of facilities	4
Time:	Trig time	5
Quantity:	Good use of facilities	5
Coverage:	per cent coverage	5
Score:	Red	56 / 60
Category:		
Sub-category:	Traff surface condition	5
Quality:	Tree health	5
Quantity:	Frontage signage	5
Quality:	Vegetation loss	5
Quantity:	Weathering/damage/signs	5
Quality:	Aesthetics	5
Quantity:	Attractive Route	5
Time:	Trig time	5
Quantity:	Integration	5
Coverage:	Neighbourhood Access	5
Score:	Red	58 / 60
Category:		
Sub-category:	Shelter presence	4
Quality:	Shelter quality	4
Quantity:	TTY Communication	4
Quality:	Weathering to T stop	4
Quantity:	Frequencing	4
Quality:	Direct Route	4
Time:	Trig time	4
Coverage:	per cent coverage	4
Score:	Red	56 / 60
Category:		
Sub-category:	Right-of-Way Signage	5
Quality:	Way-Of/Walkways & Markings	5
Quantity:	Lighting	5
Quality:	Quality area death	5
Quantity:	Direct Route	5
Time:	Trig time	5
Coverage:	per cent coverage	5
Score:	Red	58 / 60

The photographs illustrate various urban environments and their corresponding LofS scores. The first image is a residential street with a score of 52/60. The second image is a park-like area with a score of 56/60. The third image is a street intersection with a score of 58/60. The fourth image is a commercial street scene with a score of 58/60.

Our City - Macro



City of Red Deer

[illegible]

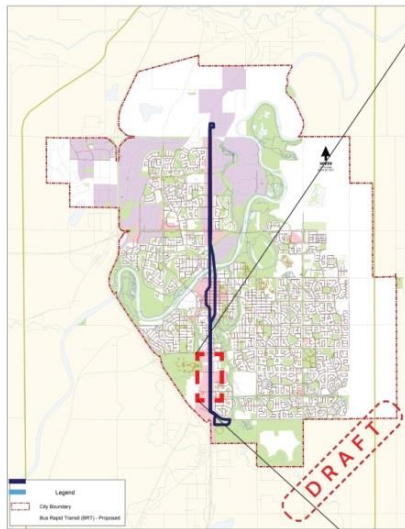
EXAMPLE ONLY

MTI in Use – Part of Proposed Project



Bus Rapid Transit (BRT) Example - Gaetz Avenue at Bower Mall

Transit Transportation Plan



A Bus Rapid Transit (BRT) line will be developed along Gaetz Avenue. Requirements for BRT include aspects of: pre-boarding payments (reducing 'dwell' time at each stop), dedicated or 'queue jump' lanes to speed the bus, well lit and safe crossings of roads for pedestrians to reach bus stops, elevated stops with high quality identifiable shelter and timetable information, articulated buses for higher capacity, fewer stops spaced at 1 to 2 km distance among other details. The current bus stop on Gaetz and the service (bus route 1) scores relatively low with the stops being hardly noticeable, patrons are exposed to the elements and fast passing cars while waiting. Once boarded, the patron endures a much longer trip than a car driver to reach his/her destination as the bus routes are not fast, frequent, direct or linking of destination pairs or triples. However, the MTI can identify and explain what is missing to make the score rise and deliver a more desirable transit service. Administration will prepare a project list with costing and options for increasing the MTI score for budget debate and approval by Council. A Dialogue Plan would be a large component for implementation of a BRT on Gaetz.



Transit Patron View - Low score



Driver View - Highest score

Potential Scenario - Transit

The steps below are generalized to demonstrate the involvement of Citizens, Council, and Administration in the process of improving a motor vehicle project identified in the Multimodal Transportation Plan (MTP).

- 1) **Direction:** Transit example - Administration knows, based on the MTP that developing Bus Rapid Transit is a medium term project. Citizens are informed of these guiding documents and are identifying that the quality of bus commute and trip times need to be improved along the key commercial corridor of Red Deer.
- 2) **Review and Analysis:** Transit example - Administration analyzes and confirms that this gap needs to be filled, identifies this improvement aligns with the MTP and development is coming in this area in the next 5-7 years. Prior Citizen feedback is considered.
- 3) **Budget:** Transit example - Council and Citizens see the Bus Rapid Transit as a project in 2024 capital budget. At a high level, they are informed that it will cost \$5M (complete guess) to improve safety, connection, quality and comfort - to a MTI score of at least 10/20 - and complete a public participation process. Citizens have opportunity to comment or ask questions of the project. Council debates the proposal.
- 4) **Informed of decisions:** Transit example - Citizens see that the BRT dialogue and construction will occur on the City's website or in the newspaper.
- 5) **Design and Planning:** Transit example - Administration begins detailed design of Bus Rapid Transit line, applying the MTI and the Engineering Design Standards. This is a multi-year project and it is determined from the Public Participation Toolbox that there is a need to do a full communication and public engagement strategy because of the extent, duration and impact of the construction.
- 6) **Implementation:** Transit example - Administration develops communication materials and sends out notifications. An RFP is completed, contractor hired and work begins. Citizens have access to the project outcomes, timelines and impacts and where to call if have an issue.
- 7) **Progress report:** Transit example - Administration posts notifications on the city's construction page. Citizens are writing letters to Administration and Council that the BRT line has issues on certain sections of Gaetz Avenue. Council is updated via email or at City Manager Briefing on ways Administration is responding to the issue.

The Shift



**Network
Vision**



Index



Standards



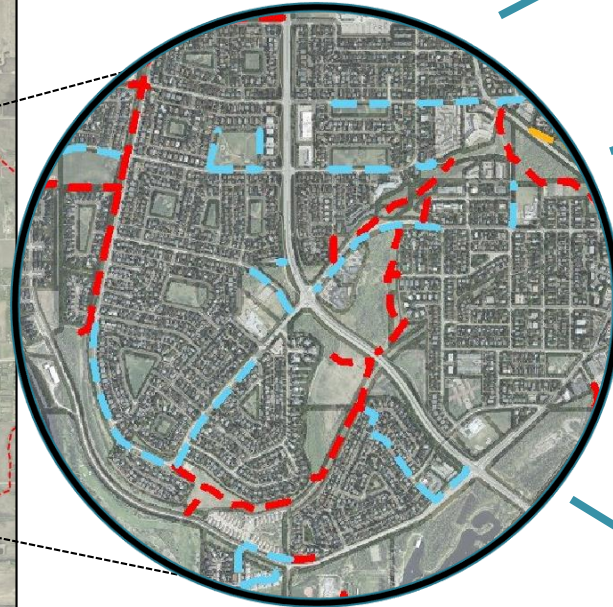
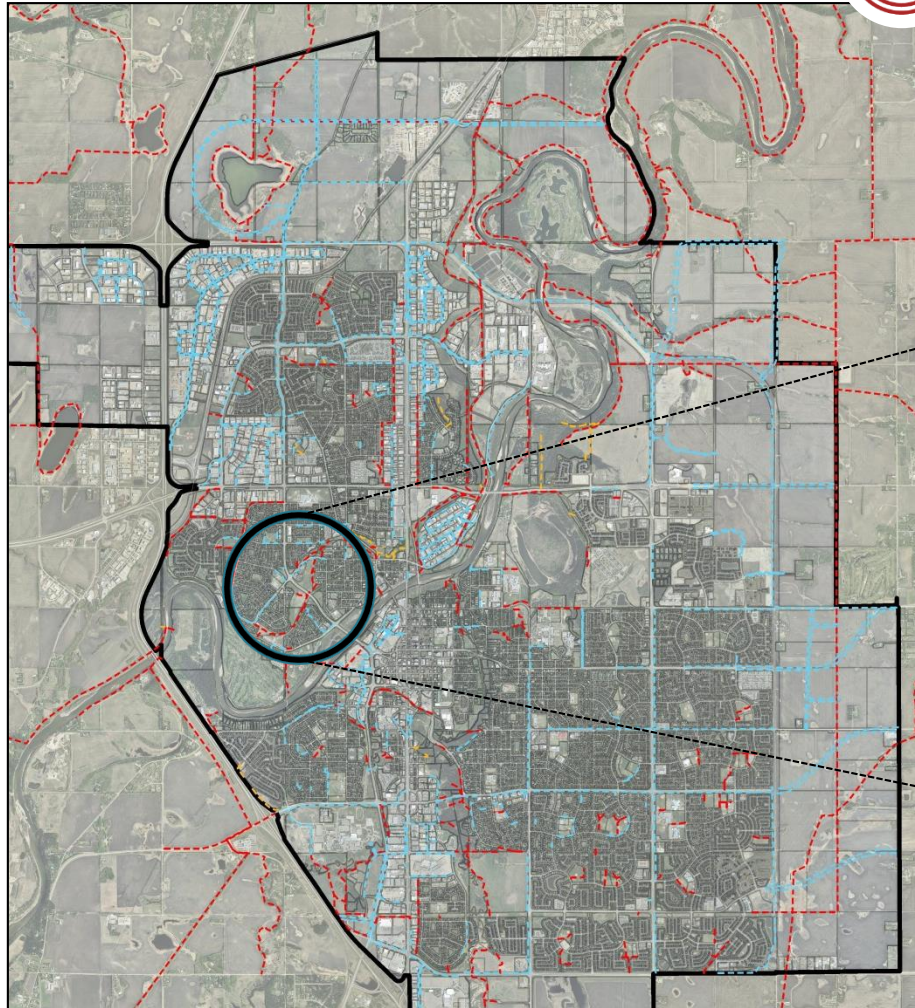
GIS Workspace



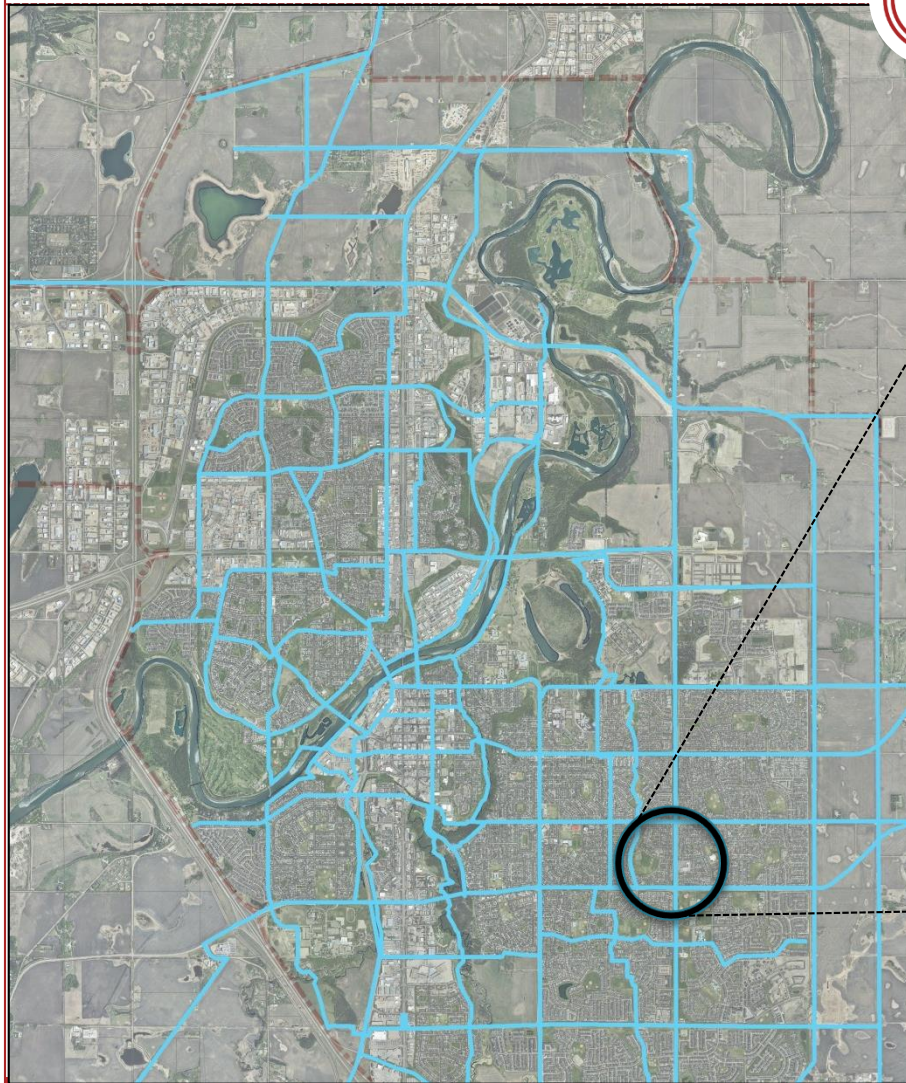
**Ongoing
Integrated
Planning**



GIS Workspace



Integrated Planning



AT Route

Transit

Utilities

Road

Park Trails

Land Use

Next Steps



- Internal project team working to operationalize the Multimodal Transportation Plan
 - Roll out to internal City departments happening imminently
 - Continue to refine the Multimodal Transportation Index & make use of it on projects
- Aligning the Multimodal Transportation Plan with our budget planning process is a work in progress
- Continue to gain momentum in planning, designing and constructing transportation projects using an integrated approach, rather than siloed past practices

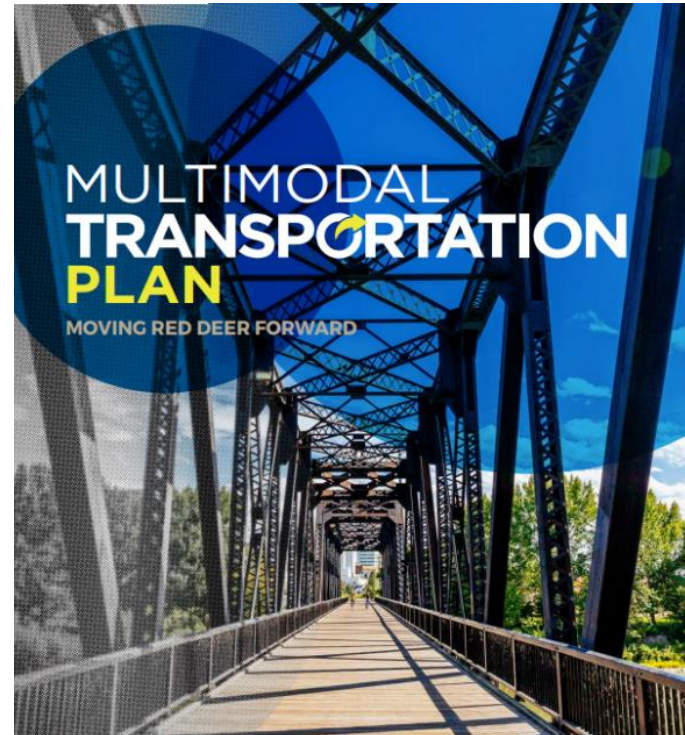
Thank You



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Special thanks to...
Jeremy Bouw
Cole Hendrigan



<http://www.reddeer.ca/city-government/plans-and-projects/ongoing-plans-and-projects/moving-red-deer-forward/>