

# Spruce Grove Roadway Speed Limit Study

City of Spruce Grove and  
Morrison Hershfield Ltd.

June 26, 2023

# PROJECT OBJECTIVES

- To evaluate the City's road network and consider emerging industries best practices.
- Key study objectives included:
  - Identifying any inappropriate posted speed limits for Arterial or Collector roadways with recommendations of what the modified speed should be.
  - Reviewing the appropriateness of the current speed limits from a sample of local roads and provide speed limit modification recommendations.
  - Reviewing the City's school and playground zones for appropriateness and provide recommendations.
  - Providing high level estimates for any recommended changes.
  - Providing preliminary traffic speed controls signage recommendations for future developments.

# Speed Management Principles

- Minimize risk of collision injuries and fatalities.
- Protecting children around schools and playgrounds.
- Encouraging active modes.
- Improving Equity.
- Environmental and economic benefits.
- Linking road functions with safe speed limits.

Approximate survival rate if hit by a vehicle at the following speeds.



30



9 out of 10



40



6 out of 10



50



2 out of 10



60



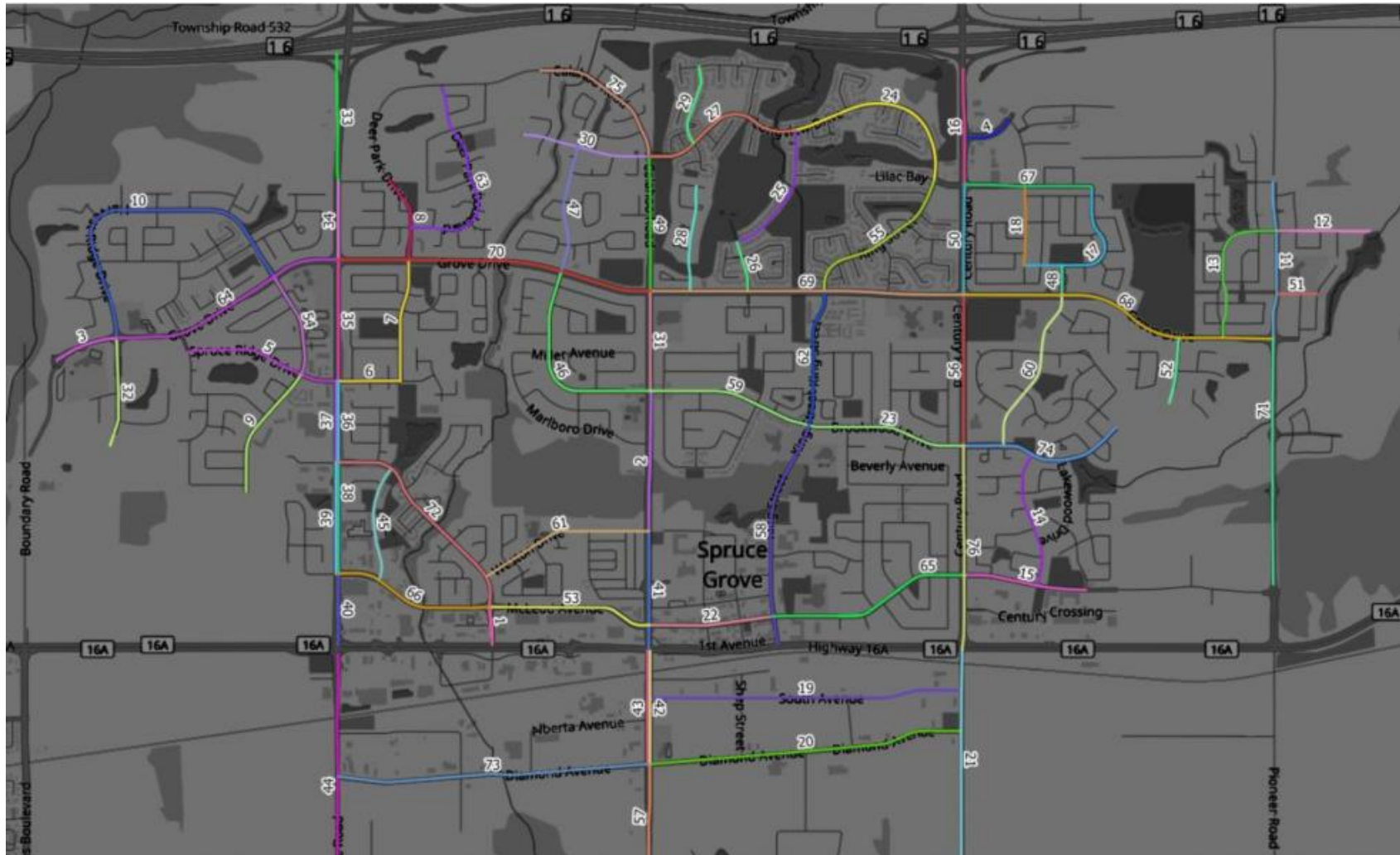
0 out of 10

# STUDY APPROACH

- The approach was to consider several approaches for setting speed limits
  - Aiming to integrate engineering traditional methods and safe system approaches of setting speed limits.
- Generally the study used -
  - Canadian Guidelines for Establishing Posted Speed Limits (CGEPSL) for collector and arterial roadways.
  - National Association of City Transportation Officials (NACTO) City Limits for neighbourhood local roads.
  - Alberta Transportation Guidelines to Playground and School Area & Zones.
- Rationale is that a speed zone should be applied to roads of similar land use, function, use, and volumes to keep things consistent for drivers.



# ARTERIAL & MAJOR COLLECTOR ROADWAYS



# ARTERIAL & MAJOR COLLECTOR ROADWAYS

- Analysis of these roadways consisted of -
  - Basic road information - land use, number of lanes, length, design speed, posted speed, prevailing speed, etc.
  - Risk factor information - geometry, lane widths, roadside hazards, pedestrian and cyclist exposure, number of intersections, on street parking, etc.
- A higher risk score represents a lower appropriate speed limit recommended.

# ARTERIAL & MAJOR COLLECTOR ROADWAYS

**TAC** **Automated Speed Limit Guidelines** Version: 10-Apr-09  
**FORM A - Automated Speed Limit Guidelines Spreadsheet**

Name of Corridor: Jennifer Heil Way (NB)  
 Segment Evaluated: NELSON DRIVE to MCLEOD AVENUE  
 Geographic Region: Spruce Grove  
 Road Agency: Spruce Grove  
 Road Classification: Arterial Length of Corridor: 581 m  
 Urban / Rural: Urban Design Speed: (Required for Freeway, Expressway, Highway) km/h  
 Divided / Undivided: Divided Current Posted Speed: (For information only) 60 km/h  
 Major / Minor: Major Prevailing Speed: (85th Percentile - for information only) km/h  
 # Through Lanes Per Direction: 2+ lanes Policy: (Maximum Posted Speed)

	RISK	Score
A1	GEOMETRY (Horizontal)	Lower 2
A2	GEOMETRY (Vertical)	Lower 2
A3	AVERAGE LANE WIDTH	Medium 4
B	ROADSIDE HAZARDS	Higher 3
C1	PEDESTRIAN EXPOSURE	Lower 3
C2	CYCLIST EXPOSURE	Medium 6
D	PAVEMENT SURFACE	Lower 1
E1	NUMBER OF INTERSECTIONS WITH PUBLIC ROADS	Number of Occurrences 17
	STOP controlled intersection	
	Signalized intersection	
	Roundabout or traffic circle	
	Crosswalk	
E2	NUMBER OF INTERSECTIONS WITH PRIVATE ACCESS DRIVEWAYS	Number of Occurrences 0
	Left turn movements permitted	
	Right-in / Right-out only	
E3	NUMBER OF INTERCHANGES	Number of Occurrences 0
	Number of interchanges along corridor	
F	ON-STREET PARKING	N/A 0

Calculate Total Risk Score  
 Total Risk Score: 38

Recommended Posted Speed Limit (km/h):  
 As determined by road characteristics: 70  
 As determined by policy:

The recommended posted speed limit may be checked against the prevailing speeds of the roadway and the road's safety performance.

Comments:

For Example - Jennifer Heil Way

- Appendix B in the report has analyzed six sections of the roadway
- Risk Score varied from 25-43
- Recommended speed limits varied from 60-90 km/hr based on Risk Score

Current Posted Speed Limit is 60km/hr

# NEIGHBOURHOOD LOCAL ROADWAYS

- These roads are the largest portion of the City's network and are made up of:
  - Residential Streets - which provide access to homes.
  - Collector Streets - which provide some access to homes but also support transit services, access to school sites, parks and local stores, as well as provide connection to the arterial and major collector roads.
- Local roads are often used by people for wheeled sports, street hockey, basketball, and many other non-vehicle activities.
- These roads have a 50km/hr default speed limit, unless otherwise posted.



# NEIGHBOURHOOD LOCAL ROADWAYS

- Reducing residential speed limits from 50km/hr to 40km/hr
  - Increases the chance of survival from 15 per cent to 70 per cent for vulnerable road users struck by a vehicle.
  - Makes streets calmer, quieter, and safer for people walking, biking, driving, and enjoying their yards and neighbourhood.
- Local roads tend to have low volumes and similar street characteristics, so it is common practice to apply a category speed limit to minor streets without reviewing every individual roadway.

# NEIGHBOURHOOD LOCAL ROADWAYS

Road	From	To	Predominant Land Use
<b>Beverly Avenue</b>	Blairmore St	Benton Street	Low density residential
<b>Mathias Ave</b>	Millgrove Dr	Mckean Way	Low density residential
<b>Church Road</b>	Queen St	King St	Mixed high-density residential/commercial
<b>Mohr Ave</b>	Spruce Glen	Queen St	Low/Medium density residential
<b>Saskatchewan Ave</b>	Commerce Rd	Canada Post	Industrial
<b>Madison Crescent</b>	Campsite Rd	At road bend	Industrial
<b>McLeod Ave</b>	Queen St	King St	Mixed Use Commercial Street
<b>Virginia Ave</b>	Ventura St	Vernon St	Medium Density Residential
<b>Langley Crescent</b>	Lakeland Dr	Lakeland Dr	Low density residential
<b>Fifth Ave</b>	King St	Oatway St	Mixed medium-density residential/commercial

10 representative local roadways were selected for evaluation

# NEIGHBOURHOOD LOCAL ROADWAYS

CHECKLIST	
Item Checklist	Comments
Project: <u>Spruce Grove Planning Study</u> Project Number : <u>22016300</u> Date : <u>November 18, 2022</u> Name of Street : <u>Fifth Avenue (between King Street and Oatway Street)</u>	
Number of Intersections (signalized or unsignalized)	Two ( unsignalized ) ,Intersection signalized for through traffic along King Street only.
Separation of Modes	
- For Pedestrians : Sidewalks (on one side , two sides or neither side or Multi Use Path	On one side
- For Bike: Bike lane wide curb lane, shared lane	No separation
- For Transit: Mixed with vehicle traffic or dedicated lane:	No separation
Number of driveways on block	Approximately twenty two
Activity Level (High, Moderate or Low)	Moderate
Confirm Posted Speed	Signage not Observed
On Street Parking (One Side, two Side)	Two sides
Any Safety Issues Observed (speeding; near misses, sightline issues, ped or bike conflicts)	None observed. Two pedestrian crossings within the street limits.
	Traffic lights at intersection of King Street only visible for through traffic along King Street.
Adjacent Land Use	
Low Density residential (single family)	Yes
Medium Density Residential (Town Houses, duplexes)	None
High Density Residential	None
Mixed Use Commercial Street	Medium density , duplexes observed as well as a fire station , library and cultural center close to King St.
Park	None
Industrial	None
School Zones	None
	None

For Example - Fifth Avenue from King Street to Oatway Street

Appendix C has the table used to gather information for all examples.

# NEIGHBOURHOOD LOCAL ROADWAYS

**TABLE 3. RECOMMENDED MAXIMUM SAFE SPEEDS FOR THE REVIEWED LOCAL ROAD SEGMENTS**

Road	From	To	Conflict Density	Activity Level	Recommended Max. Safe Speed
<b>Beverly Avenue</b>	Blairmore St	Benton Street	Moderate	Low	40 kph
<b>Mathias Ave</b>	Millgrove Dr	Mckean Way	Moderate	Low	40 kph
<b>Church Road</b>	Queen St	King St	Moderate	Moderate	40 kph
<b>Mohr Ave</b>	Spruce Glen	Queen St	High/Moderate	Low	40 kph
<b>Saskatchewan Ave</b>	Commerce Rd	Canada Post	High	Low	40 kph
<b>Madison Crescent</b>	Campsite Rd	At road bend	High	Low	40 kph
<b>McLeod Ave</b>	Queen St	King St	Moderate	Moderate	40 kph
<b>Virginia Ave</b>	Ventura St	Vernon St	Moderate	Low	40 kph
<b>Langley Crescent</b>	Lakeland Dr	Lakeland Dr	Moderate	Low	40 kph
<b>Fifth Ave</b>	King St	Oatway St	High/Moderate	Moderate	30 kph*

This table summarizes the results of the review for each street.

All the roads examined can be recommended for a speed limit of 40km/hr.

Therefore a 40km/hr speed limit on local streets supports safe movement and is contextually appropriate for the majority of local city streets.

# SCHOOL & PLAYGROUND ZONES

- The Alberta Infrastructure and Transportation Guidelines for schools and playgrounds creates uniformity on establishment, signage, and markings within Alberta.
  - Once a zone or area has been established it should be signed and marked in a consistent manner.



WC-1 and RB-1  
(School Zone)



WC-3 and RB-1  
(Playground Zone)



WC-1 (School Area)



WC-3 (Playground Area)



# SCHOOL AREA OR ZONES

- The School Zone Input Worksheet provides an assessment of the need for a zone or area. There is a total score of 100 points in six categories:
  - School Type
  - Fencing
  - Adjacent roadway classification
  - Property line separation
  - School entrance features
  - Presence of sidewalks

Total Score	School Area or Zone?
0 – 40	Nothing
41 – 64	School Area
65 – 80	School Area or School Zone*
81 – 100	School Zone

\* Local conditions must be considered in detail in order to determine the appropriate treatment. Wherever possible, mitigation measures should be explored that would reduce the score so that marginal school zones can be avoided. The reasons for the final decision should always be documented.

# SCHOOL AREA OR ZONES

Below is a summary of the School Zone warrant analysis results.

#	School Name	Grade	Address	Current School Area/Zone (Google Street View)	Warrant Score	Warrant Result	Note
1	Brookwood School	K-grade 4	460 King Street	School Zone	65	School Area or School Zone	Brookwood School and Woodhaven Middle School are adjacent. The current School Zone setting is appropriate
2	Woodhaven Middle School	Grade 5-9	475 King Street	School Zone	51	School Area	
3	Copperhaven School	K-grade 9	151 Grove Drive West	School Zone	83	School Zone	
4	Greystone Centennial Middle School	Grade 5-9	130 Greystone Drive	School Zone	43	School Area	School Zone is suggested to be remained considering speed reduction benefits
5	Prescott Learning Centre	K-grade 9	340 Pioneer Road	School Zone	65	School Area or School Zone	
6	Ecole Broxton Park School	K-grade 9	505 McLeod Avenue	School Area	73	School Area or School Zone	
7	Millgrove School	K-grade 4	851 Calahoo Road	School Area	67	School Area or School Zone	
8	Spruce Grove Composite High School	Grade 10-12	1000 Calahoo Road	School Area	43	School Area	
9	St. Joseph Catholic School	K-grade 4	195 Weston Dr	School Area	70	School Area or School Zone	
10	St. Peter the Apostle Catholic High School	Grade 9-12	10 Harvest Ridge Dr	School Area	53	School Area	
11	St. Thomas Aquinas Catholic School	Grade 5-8	381 Grove Dr W	School Area	51	School Area	St. Thomas Aquinas Catholic School and St. Marguerites Catholic School are adjacent
12	St. Marguerites Catholic School	K-grade 4	395 Grove Dr W	School Area	57	School Area	
13	Living Waters Christian Academy	K-grade 12	5 Grove Drive W	School Area	57	School Area	

# PLAYGROUND AREA OR ZONES

- The Playground Zone Input Worksheet provides an assessment of the need for a zone or area. There is a total score of 100 points in six categories:
  - Playground Type
  - Fencing
  - Roadway classifications
  - Property line separation
  - Playground entrance
  - Presence of sidewalks

Total Score	Area or Zone?
0 – 40	Nothing
41 – 80	Playground Area
81 – 100	Playground Zone

# PLAYGROUND AREA OR ZONES

Below is a summary of the Playground Zone warrant analysis results.

#	Playground Name	Address	Type	Age Group	Capacity	Current School Area/Zone	Warrant Score	Warrant Result	Note
1	Westbend Park - WestBend St	25 Westbend St	Play Equipment	5-12 years old	30-35	Playground Zone	97	Playground Zone	
	Westbend Park - Westcove St	25 Westbend St	Play Equipment	5-12 years old	30-35	Playground Zone	95	Playground Zone	
2	Heatherglen Cres	Heatherglen Cres	Play Equipment	5-12 years old	30-35	Playground Zone	93	Playground Zone	
3	McKean Park	43 McKean Way	Play Equipment	5-12 years old	30-35	Playground Zone	100	Playground Zone	
4	Woodside Park - Wascana St	4 Wascana St	Sports Field			Playground Zone	53	Playground Area	The Warrant suggests Playground Area instead of Playground Zone. For the considerations of safety and speed reduction, the current Playground Zones of Woodside Park is suggested to be remained
	Woodside Park - Westview Cres	4 Wascana St	Sports Field			Playground Zone	58	Playground Area	
	Woodside Park - Woodside Cres	4 Wascana St	Play Equipment	5-12 years old	30-35	Playground Zone	77	Playground Area	
5	Windermere Park	Windermere Dr	Play Equipment	2-12 years old	15-20	Playground Zone	97	Playground Zone	
6	Kenton Way Park	33 Kenton Way	Play Equipment	5-12 years old	15-20	Playground Zone	97	Playground Zone	
7	Beechmont Park	21 Beechmont Ave	Play Equipment	5-12 years old	30-35	Playground Zone	100	Playground Zone	
8	Harvest Ridge Park	Harvest Ridge Drive	Play Equipment	2-12 years old	30	Not Marked	75	Playground Area	A Playground Area is suggested for Harvest Ridge Park
9	Henderson Park	201 Harvest Ridge Drive	Play Equipment	2-12 years old	30	Playground Zone	85	Playground Zone	
10	Spruce Ridge Dr Park	311 Spruce Ridge Rd	Play Equipment	2-12 years old	30	Playground Zone	85	Playground Zone	
11	McLaughlin Park	145 McLaughlin Dr	Play Equipment	2-5 years old	15	Playground Zone	85	Playground Zone	
12	Jesperdale Park	1205 Calahoo Rd	Play Equipment	2-12 years old	30	Playground Area	43	Playground Area	
13	Dillon Park	120 Deer Park Blvd	Play Equipment	2-12 years old	30	Playground Zone	85	Playground Zone	
14	Longview Park	Longview Dr	Play Equipment / Sports Field	2-12 years old	30	Playground Zone	67	Playground Area	The Warrant suggests Playground Area instead of Playground Zone. For the considerations of safety and speed reduction, the current Playground Zone of Longview Park is suggested to be remained
15	Hilldowns' Park	Longview Dr / King St	Play Equipment	2-12 years old	30	Playground Area	67	Playground Area	
16	Spruce Village Park	Victoria Ave / Spruce Village Dr E	Play Equipment	2-12 years old	30	Playground Zone	62	Playground Area	The Warrant suggests Playground Area instead of Playground Zone. For the considerations of safety and speed reduction, the current Playground Zone of Spruce Village Park is suggested to be remained
17	Greystone Park	77 Greystone Dr	Play Equipment	2-12 years old	30	Playground Zone	85	Playground Zone	
18	Brookside Park	28 Brookside Cres	Play Equipment	2-12 years old	30	Playground Area	79	Playground Area	
19	McLeod Avenue Park	McLeod Ave	Play Equipment	2-12 years old	30	Playground Area	67	Playground Area	
20	Lakewood Park	Lawson Blvd / McLeod Ave	Sports Field			Playground Area	58	Playground Area	
21	Grove Meadows Basketball Court	20 Grove Meadow Dr	Basketball Court & Open Field			Playground Area	53	Playground Area	



# FINDINGS & RECOMMENDATIONS

- The analysis for collectors and arterials has identified 14 collector roadways and one arterial that are recommended for lower speed limits than currently posted.
- It should be noted that the analysis also had some roadways suitable for higher speed limits but keeping Vision Zero and consistencies in place it is recommended to keep them as is.

ID	Roadway	FROM	TO	Posted Speed Limit	Recommended Speed Limit
5	Spruce Ridge Drive	SPRING GATE	JENNIFER HEIL WAY	50	40
7	Heatherglen Drive	GROVE DRIVE	HAWTHOME GATE	50	40
21*	Century Road	HWY 16A E	TWR 524	80	70
22	McLeod Avenue	CALAHOO ROAD	KING STREET	50	40
23	Brookwood Drive	KING STREET	CENTURY ROAD	50	40
25	Fairway Drive	LONGVIEW DRIVE	LINKS ROAD	50	40
28	Fieldstone Drive	FIELDSTONE CRESCENT	GROVE DRIVE	50	40
29	Linkside Boulevard	LINKSVIEW DRIVE	LONG VIEW DRIVE	50	40
30	Avonlea Way	ARTHUR WAY	CALAHOO ROAD	50	40
45	McLaughlin Drive	NELSON DRIVE	MCLEOD AVENUE	50	40
47	Aspenglen Drive	AVONLEA WAY	GROVE DRIVE	50	40
61	Weston Drive	NELSON DRIVE	CALAHOO ROAD	50	40
62	King Street	GROVE DRIVE	WOODHAVEN DRIVE	50	40
65	McLeod Avenue	KING STREET	CENTURY ROAD	50	40
75	Calahoo Road	ADELAIDE COURT	LONGVIEW DRIVE	50	40

\* This arterial segment has two posted speed limits – 80 km/h for the southern part of the segment and 60 km/h for the northern part of the segment. The segment with the posted speed limit of 80 km/h is recommended to be adjusted to 70 km/h, while the segment with the posted speed limit of 60 km/h is to be remained.





# FINDINGS & RECOMMENDATIONS

- The recommended speed limit for Local Roadways is 40km/hr, with individual reviews of any roadways when exceptions are being considered.
  - A blanket speed limit on local roads helps keep consistency for motorists.
  - Many other municipalities have successfully implemented blanket speed limits.
- Currently the School and Playground warrant analysis results state that they are appropriately equipped with the correct zone/area signage and settings.
  - The Spruce Grove Traffic Bylaw is recommended to continue to be followed:
    - Using 7:30 a.m. to 4:30 p.m. as the school zone hours with the 30km/hr speed limit.
    - Using 8:30 a.m. to one hour after sunset seven days of the week.

# IMPLEMENTATION STRATEGY

- Update the posted speed limits where changes are required on Arterial and Major Collectors:
  - This can be done by changing out the current signs with new ones.
  - Can use the existing poles in most cases.
- For a blanket local roads speed limit, many jurisdictions install signs at City Limits that state:
- Future Developments utilize Traffic Calming Measures in the designs - such as roundabouts, curb bulges, speed tables, etc.



# Questions??