

Sustainable Rural Roads Master Plan (SRRMP) Update

Presenters

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About the SRRMP

- The SRRMP (2010) guides how rural roads are maintained and improved in Strathcona County.
- All range roads and township roads (grid roads) and roads within country residential subdivisions and rural hamlets are included in the plan.
- Principles:
 - Sustainably managed and operated road network
 - Asset focused decision making

Rural roads a priority

Strathcona County is committed to providing a safe rural road network. High quality rural roads are essential to our quality of life.



Rural road successes

Since the 2010 SRRMP update, many improvements have taken place increasing the overall network condition, quality and connectivity.

- Improvement of Class I roadways
- Rehabilitation of Class II and subdivision roadways based on overall network condition versus fixed cycle
- Increased frequency of gravel maintenance (4 years). Shifted to needs based regravelling program.
- Gravel Rehabilitation Program
- Approval of the Transportation Systems Bylaw

SRRMP update

The master plan update, last completed in 2010, will review maintenance practice and upgrades, as well as the methods and criteria for prioritization of the roads.

- As part of the plan update, the County will consider:
 - Current road designs
 - Criteria for how roads are classified, which determines whether they have an asphalt, cold mix, dust-suppressed gravel or loose gravel surface
 - Rural road service levels and maintenance methods
 - Models for funding and prioritizing road improvements
 - Road safety programs
 - Sustainability of the rural road network

Master Plan update: areas of focus

- A current state analysis of the existing rural road network.
- Develop criteria for the rural road classification system as well as their priority.
- Review alternatives for special maintenance and short-term upgrade strategies.
- Review current maintenance practices and techniques including treatments, standards and guidelines.

SRRMP update timeline



Public engagement

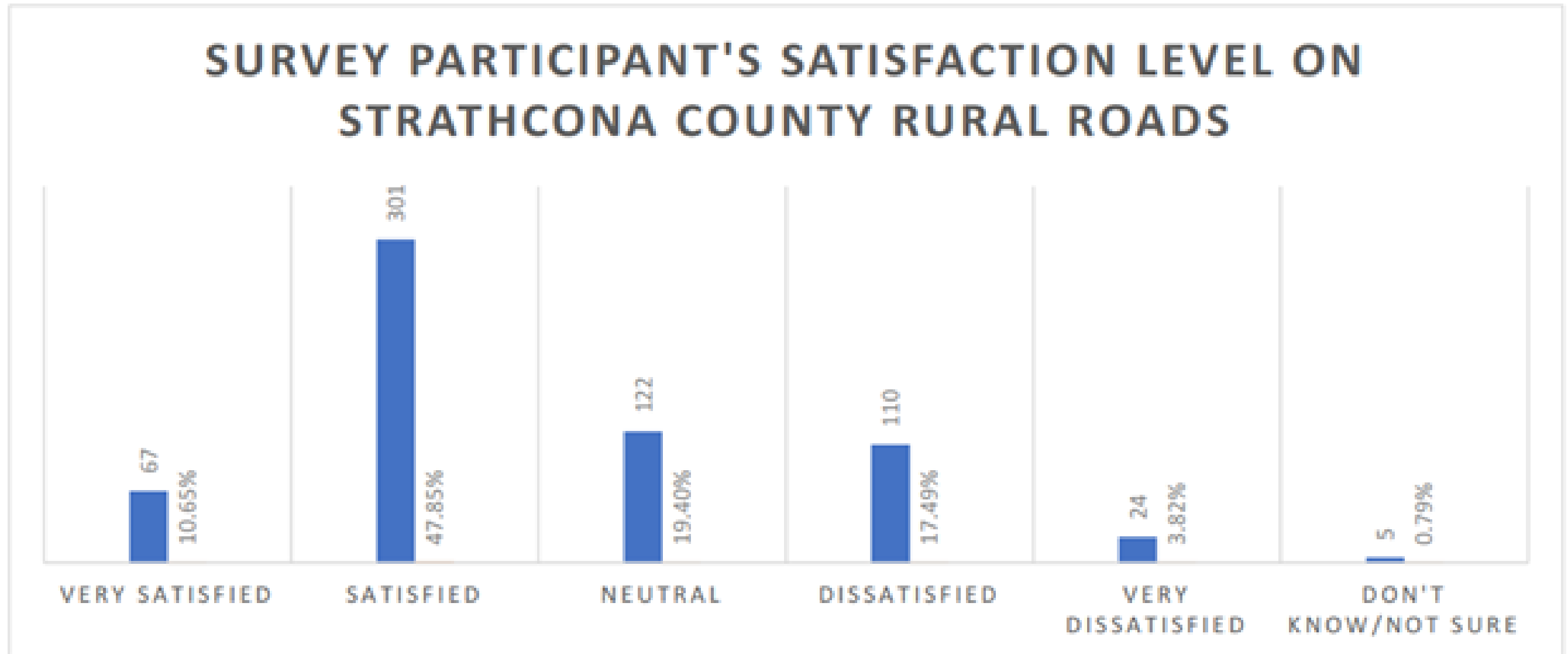
- Public acceptance and satisfaction are important factors in road planning and engineering decisions.
- Strathcona County wants to hear from residents on how they use the rural road network, their safety and maintenance concerns, and their vision for future roads.
- The County recognizes that rural road users are diverse.



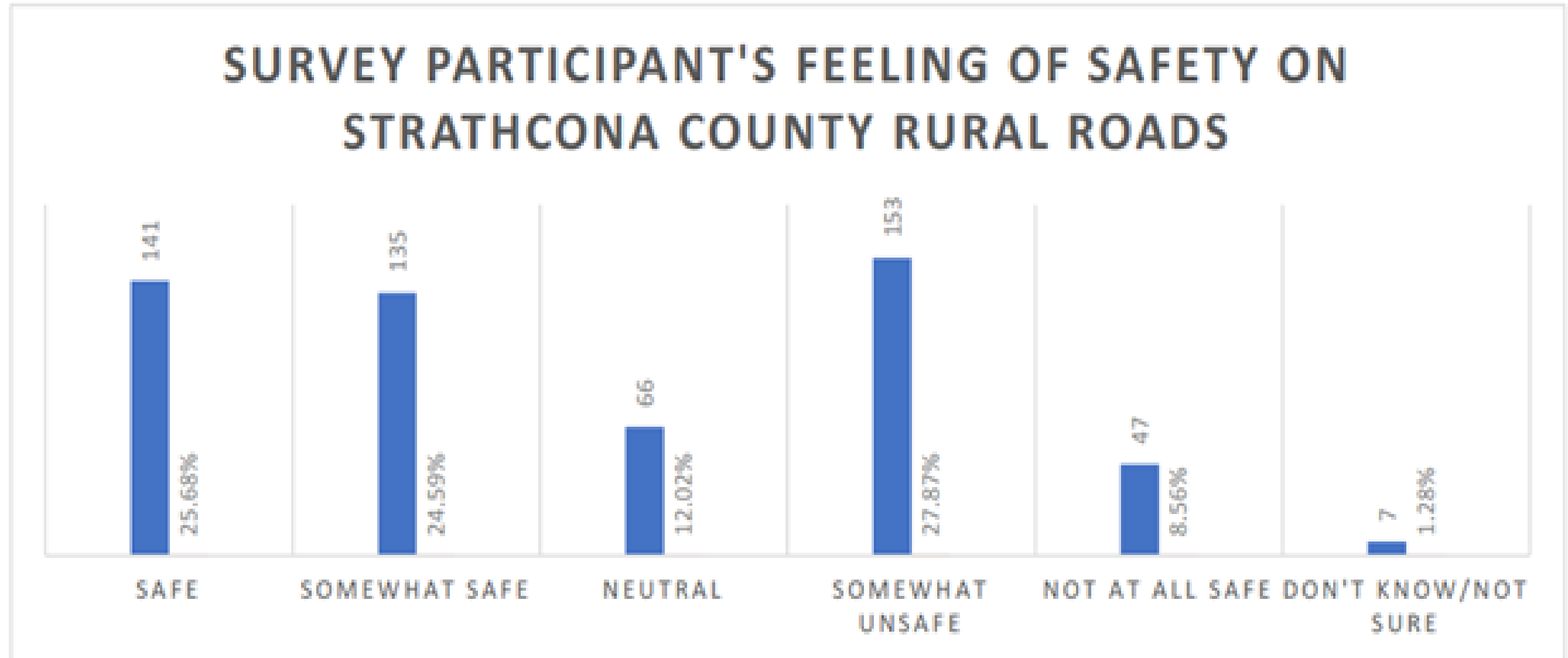
Initial public engagement

- Online survey
 - A survey was available through SCOOP and online from November to December 2019
 - A total of 782 surveys were completed online and during the open houses
- Open houses
 - Six open houses were held in various locations throughout Strathcona County from November to December 2019
 - A total of 246 participants attended

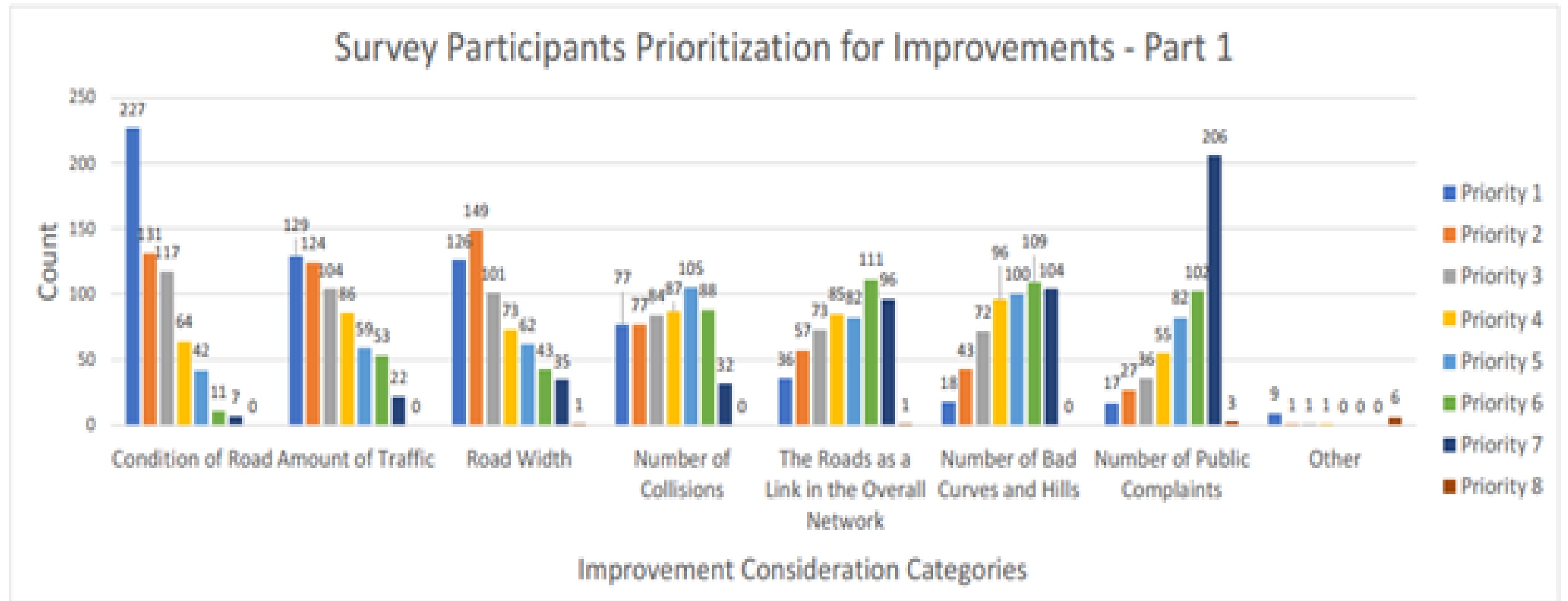
Engagement findings



Engagement findings continued



Engagement findings continued



What we heard

- The public generally felt satisfied and safe on the road network. The majority of unsatisfied or unsafe respondents primarily drive on Class II roadways.
- Condition of road, amount of traffic and road width were the top three criteria to consider for improvements and maintenance.
- Widen narrow roads, improve intersection sightlines, and improve steep side slopes were reported as the top three criteria for roadway upgrades.
- Maintenance and lifecycle of patches and pothole repairs is a concerning topic for the survey participants.

Defining themes

- Surface condition
 - Overall condition of the roadway surface which directly impacts the safe use of the roadway for all users.
- Road width
 - The overall width of the finished roadway surface for safe vehicle use.
- Traffic volume
 - Total number of vehicles using that roadway including also the type of vehicle.

Theme 1: surface condition

- The overall network is being maintained to a high overall visual condition.
- Capital funding supports current infrastructure conditions and present-day roadway use.
 - Decision matrix is focused on condition first. Overall network volume and road width are secondary.
 - Improvements have been made to correct side slope issues in construction processes.
- Approved 2021 Operations Budget approved additional funding to complete timely surface maintenance.

Surface condition continued

- Overall network analysis for surface conditions have shown:
 - 40% of Class I roadways need improvement from current coldmix surface to asphalt*
 - 8% of Class II roadways need improved from gravel surface*
 - 21% of country residential roadways need improved from coldmix surface*
- All roadways are reviewed based on the overall surface condition, though some hard surface roadways may have a different surface, the overall quality of the surface matches current level of service.

*Required improvement based on surface type only, no consideration for current surface type quality.

Theme 2: roadway widths

- Overall, the network average width is below the design width, the County has been focused on making improvements the past 10 years on this item, but opportunities exist.
 - 62% of Class I roads are narrower than the existing 9.0m standard
 - 85% of Class II roads are narrower than the existing 7.5m standard
 - 89% of Class III roads are narrower than the existing 7.5m standard
- Overall roadway width is a common concern across roadway types based on the resident feedback.
- Concerns highlighted mixed vehicles types impacting how the roads are used, i.e.: agriculture, cyclists, equestrian, industrial, pedestrians.

Road width: current programs

- Current capital funding supports Class I and Class II improvements through full reconstruction to address width and design.
- Our Annual Rehabilitation Programs current scope supports moderate improvements including improving base, crown, gaining width where possible and replacing through-grade culverts.
 - Program goal: focus on improving surface and minimal widening.

Theme 3: traffic volumes

- Currently the primary determinant for the classification of design criteria and surfacing standards is traffic volume.
- Traffic volumes are described in vehicles per day (VPD), but current data does not classify vehicles between light (passenger cars) and heavy duty (semi-trucks).
- The current 3-year cycle for traffic counts should be reviewed. Continue the use of four-season counts should classification of roadways be changed to lower functional class.

Traffic volumes

- Current road network has segments with volumes exceeding the upper thresholds for each functional classification. Upgrade programs are focused on improving these roadways.
- Some roadways have lower volumes than current lower thresholds of the classification. These segments are being monitored and maintained at current service level.
- Future revisions to the Transportation Systems Bylaw will reassess and be validated at that time.

Update considerations

The follow sections will review key considerations being made for the SRRMP update, these sections include:

- Gravel roadways
- Road network improvements
- Do it Right principle
- Prioritization framework
- Network level modelling
- Safety improvements



Gravel roadways

- The Class III roads continue to not meet expectations for condition and quality of surface.
 - Concern is that fully bound standard will not perform.
 - Changes made in last 10 years to completely dust suppress the Class III roadways gives the initial perception of an asphalt.
- Class IV network is functioning well, overall conditions are being maintained and spot dust control overall meets the goal of reducing dust pollution onto private property.

Gravel roadways: Class III



Range Road 205 from Township Road 544 to Township Road 550

- Unravelling from traffic

Gravel roadways: Class III



Range Road 211 from Highway 15 to Township Road 560

- Rutting and shoving on surface

Gravel roadways: Class III



Range Road 205 from Township Road 550 to Township Road 552

- Unraveling surface at approach

Gravel roadways: Class III



Range Road 220 from Township Road 542 to Township Road 544

- Unraveling section of oiled gravel surface

Gravel roadways: Class III



Range Road 203 from Township Road 510 to Highway 14

- Unravelling of gravel surface

Gravel roadways: maintenance review

- Current standard of fully bound, oiled gravel has led to overall condition concerns.
 - Hard bound surface will not stay in a bound condition with current subgrade conditions and ability to handle mixed vehicle use.
 - Oiled surface gives impression of asphalt at initial point but does not perform as traffic and turning movements impact the surface. Long portions are in good condition with isolated areas of failure.
 - Current available road oil product does not allow for hard bound finished surfaces like historical.
 - Treatment type is costly, and the only maintenance treatment is to lift and re-lay.

Gravel roadways: rehabilitation Program

- Current standard of base reconstruction with cement stabilized subgrade and a dust suppressed oiled gravel surface.
 - Base construction is supporting a good structure for surface work.
 - Overall longevity of surface matches current failures, but failures are just surface condition, not major failures with clay/soil coming to surface.
 - Consideration of large investment with no surface rideability quality past first couple years.

Gravel roadways: opportunities

- Begin paving roads at 200 vehicles per day as opposed to 250 vehicles per day.
- Place an asphalt surface at intersections for improved stopping conditions where gravel surface meets an asphalt roadway.

Gravel surface

- Reintroduce a dust-controlled surface with loose gravel versus current complete bound surface. Move to a dust control road as opposed to fully bound.



Road network improvements

- Currently, road upgrades are a result in traffic volume increases due to use, this leads to portions of routes being improved to higher classifications.
- Review considerations:
 - Propose to create a modelled rural road network with key principles being established for frequency of Class I, Class II and secondary highway connections.
 - Potential to create minimum distances from lower volume roadways to a hard surface roadways.

Do it Right Principle

- We continue to hear "If you are going to do it – Do it Right"
- Currently a disconnect between expectations and delivery
- Customer level of service they want (feeling)
 - Surface improved
 - Widen out the surface
 - Improve access for structure and surface to property line
 - Re-Engineer overall drainage system to eliminate all historical issues
 - Complete right-of-way brushing

Do it Right Principle continued

Summary of recent projects which were completed and met some of the stakeholder requirements

Project	Surface improvements	Widening	Drainage improvements	Access improvements	Brushing	Avg cost per mile
Annual Rehabilitation	Yes	Minor	Culverts as required	Blended/minimal	High risk only	\$250,000
TWP RD 510 2019	Yes	Minor	Culverts only	Blended/minimal	High risk only	\$500,000
RNG RD 213 Widening 2018	Yes	Yes	Yes, major system only	Blended	As needed	\$1,000,000
RNG RD 210 Reconstruction 2021	Yes	Yes	Yes	Yes	Yes	\$1,500,000
TWP RD 542 2016	Yes	Yes	Yes	Yes	As needed	\$1,600,000
TWP RD 520 (Class I) 2014	Yes	Yes	Yes	Yes	Complete ROW	\$2,100,000

Do it Right Principal continued

- Current programs that focus on width improvements have major impacts on residents including:
 - Longer construction process with prolonged impacts
 - Fence lines where road right of way vegetation and private vegetation
 - Impact on right of way grass/landscaping being maintained by residents
 - Approach slope angle and historical access points

Prioritization framework

- Key component for consideration in the 2021 Sustainable Rural Roads Master Plan, with the following key areas of focus:
 - Network level modeling for classification planning, versus reactive nature of current plan.
 - Safety improvements for overall network.
 - Preservation of network investment.
 - Reassessing and re-evaluating road classifications.

Network level modeling

- Traffic models assist in understanding where future demand will be coming from so that the network can be constructed in a proactive manner rather than reactive.
- A network model will be able to consider future developments, such as Bremner, Cambrian Crossing, Ardrossan expansion, future Industrial Heartland development and Highway 16 freeway expansion. This will benefit prioritization by taking a longer-range view and focusing improvements to provide long term value.

Safety improvements

- Primary areas of improvement identified in the public engagement sessions was widening of narrow roadways and improving intersection sightlines which both relate to road safety.
- Improvements to address these concerns include:
 - Grade widening
 - Improving steep side slopes
 - Brushing trees at intersections
 - Improving horizontal and vertical geometry

Preservation of network investment

- Key to a sustainable road network is preserving the existing infrastructure.
- The most cost-effective way to maintain investment in existing network is timely maintenance.
- Timely maintenance, such as pothole and crack repair, can delay more expensive rehabilitation methods such as overlays and reconstructions.

What next for surface treatments

- Current network service levels are not sustainable at current traffic volume standards.
 - Shift focus to ensuring we minimize distance travelled on gravel network so users can get to higher classification roadways vs maintaining gravel for 8 miles at an increased service level, even if most direct route.
- Focus on network connectivity to bring residents and road users from major roadways to their destination.
- Improve Class III maintenance to a sustainable product and ensure high volume segments are re-classified.

Next steps – Schedule

- Technical Committee review and draft report – February 2021
 - Value engineering
- Virtual engagement on proposed draft report in April 2021
- Final Draft – July 2021

Thank you

- Questions and comments.