



# Department of Public Works

## Highway Programs

# Highway System Size and Scope

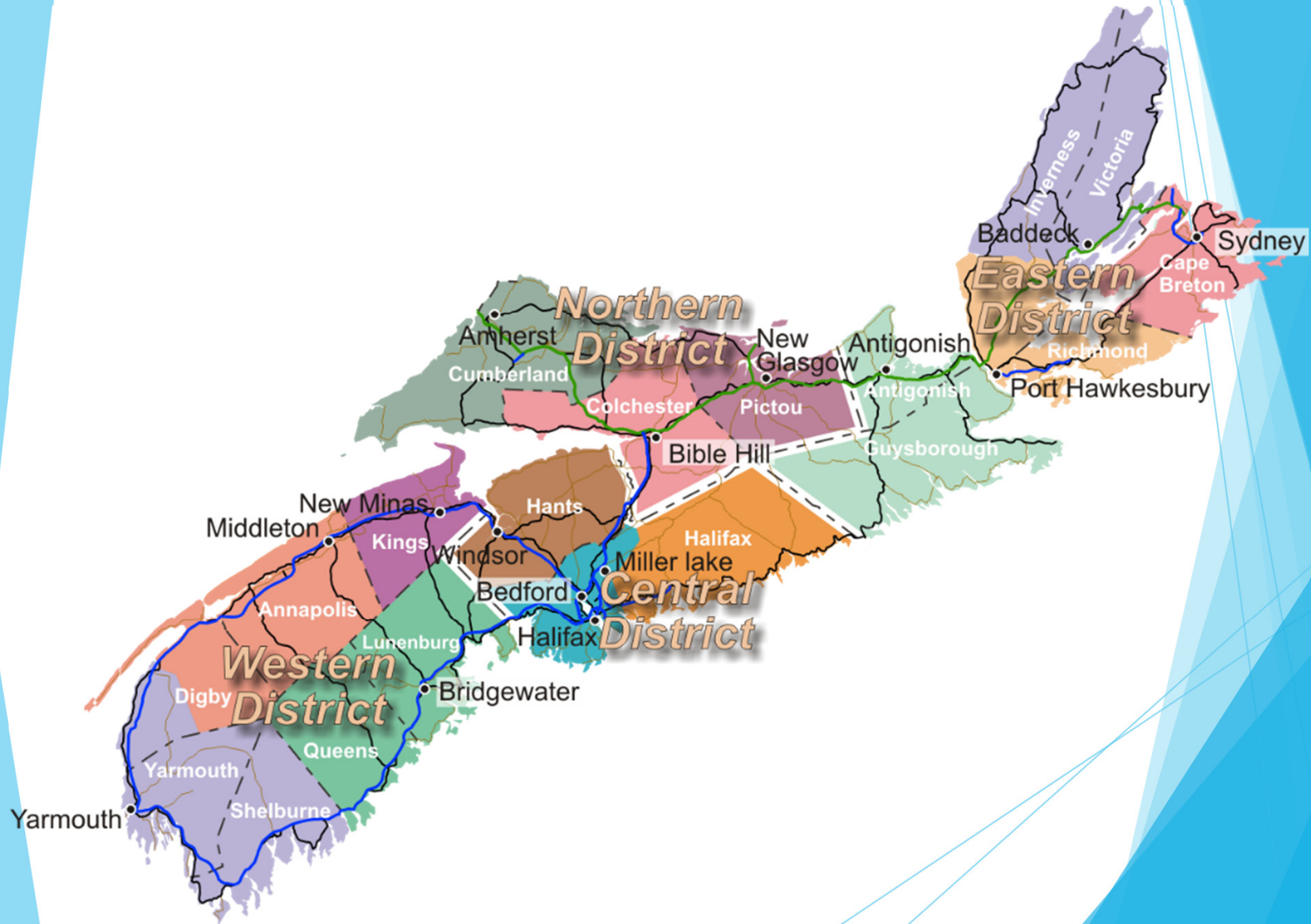
- ~23,000 km of highways and roads
  - 1700 km 100 Series Highways
  - 6400 km Trunks and Routes
  - 6200 km paved Local Roads
  - 8800 km gravel Local Roads
- 4100 bridges/structures
- Do not maintain municipal roads, federal roads, or private roads

# What we do....

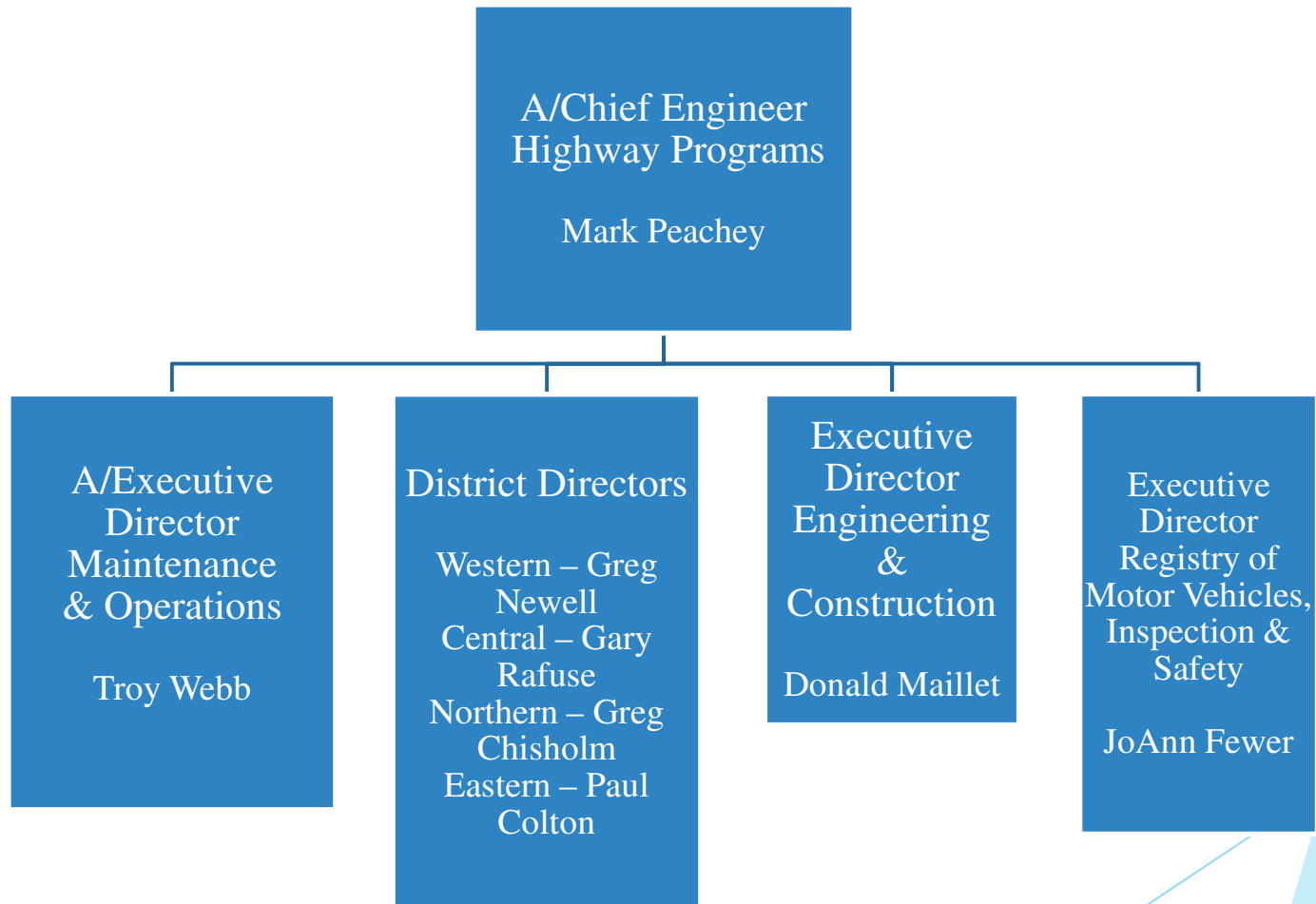


- Construct, Maintain, Operate Provincial Highways
- Highway Maintenance
- Snow and Ice Control
- Operate Ferries
- Vehicle Compliance
- Registry of Motor Vehicles
- Administration of Highway Network

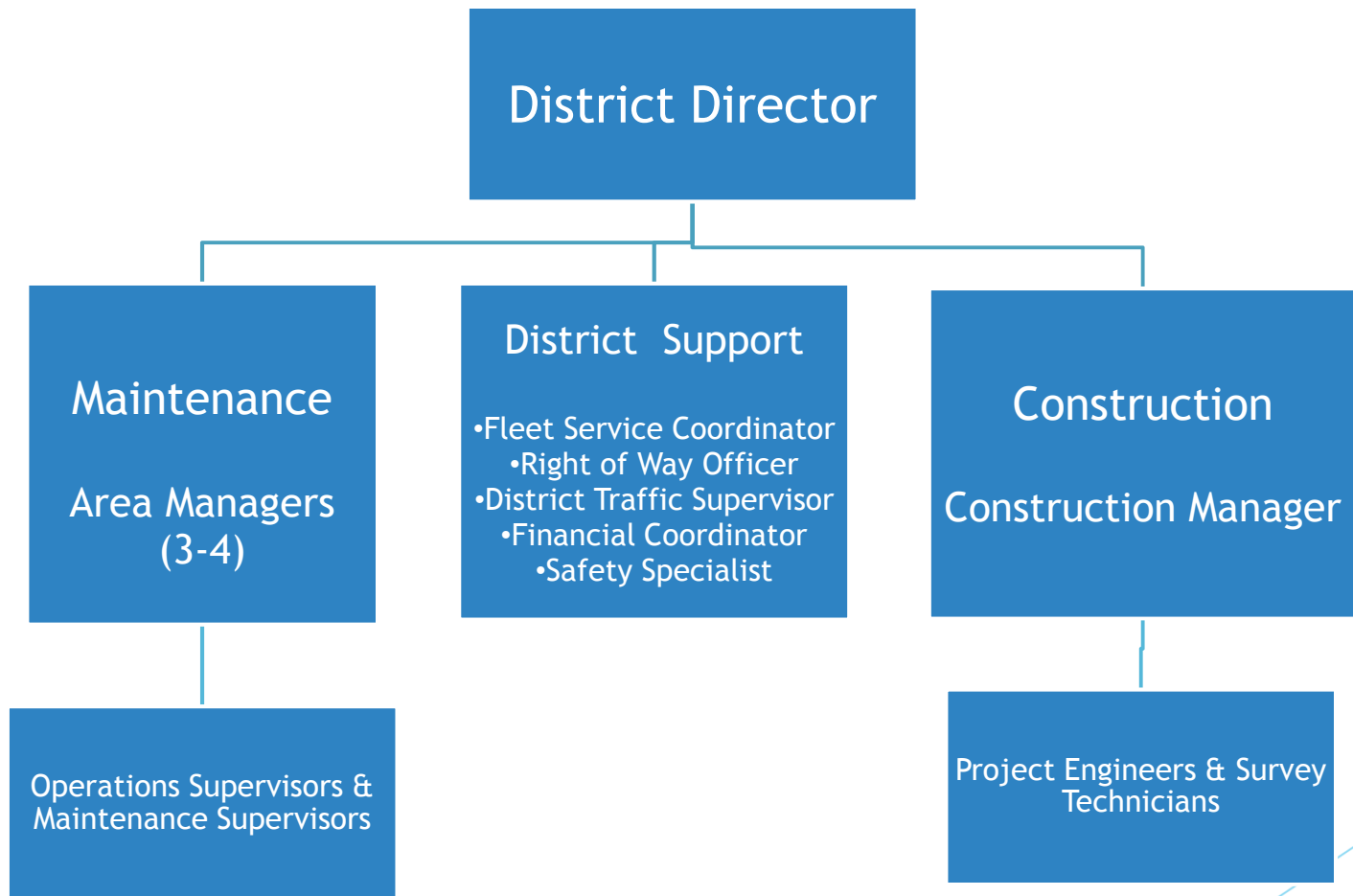
# Organization



# Highway Programs



# District Structure



# Maintenance & Operations

- Summer Maintenance
- Snow and Ice Control
- Access control
- Fleet Management
- Tendering Services (RIM)
- Policies, Procedures, Manuals
- Asset Information Management
- Operations Contact Centre



# Maintenance & Operations Budget

- ▶ \$125 M
  - ▶ \$65 M Summer
  - ▶ \$60 M Winter
- ▶ \$40 M Gravel Road Program
  - ▶ Brush cutting, Ditching, Culvert upgrades, Graveling
- ▶ \$22 M RIM (Rural Impact Mitigation) Program
  - ▶ \$16 M Core Activities
  - ▶ \$ 6 M Pavement Preservation
- ▶ \$2M 100 Series brushcutting and mowing

# Resources

## Personnel

- ~2000 FTE's
- Management
- Professional
- Technical
- Clerical
- CUPE 1650 Highway Workers
  - - 900 regular
  - - 750 casual

## Equipment

- 275 trucks
- 86 graders
- 71 loaders
- 43 FWD plows
- 31 backhoes
- 27 tractors
- 12 excavators
- 7 ferries

## Locations

- 80 Bases
- 4 District Offices
- 9 Area Offices
- 5 Scale houses
- 7 Mechanical Branches



# Engineering & Construction

- Tendering, administration, quality assurance and contract compliance
  - Major highway/bridge construction
  - Major bridge repairs
  - Paving and re-paving projects
- Structural Engineering
- Highway Planning & Design
- Highway Construction Services
- Traffic Engineering
- Road Safety



# 2021/22 Capital Budget

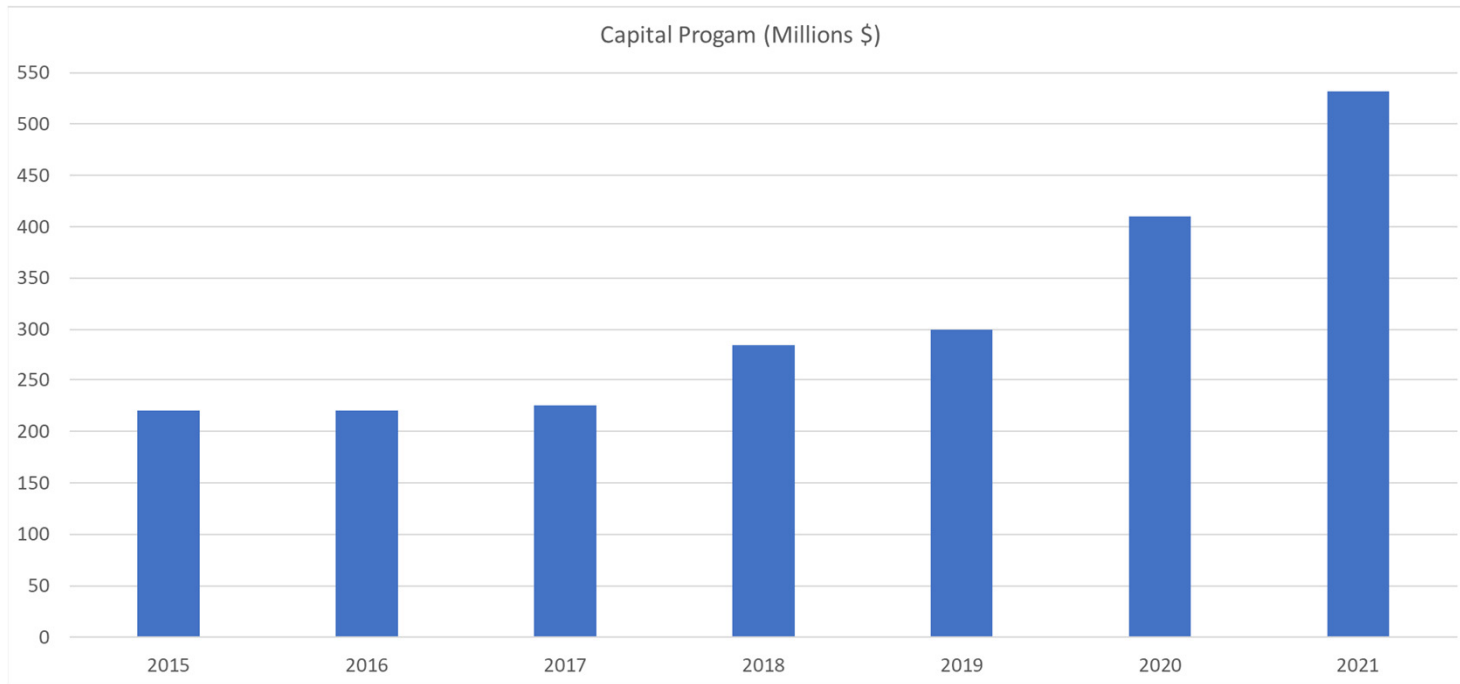
- \$500 million
  - Major Construction \$330 million
  - Paving \$102 million
  - Bridges \$ 29 million
  - Land Purchases \$ 7 million
  - Equipment & ferries \$ 7 million
  - Highway Design & Surveys \$ 5 million
  - Gravel Road Program \$ 20 million



# Engineering & Construction



# Highway Capital Funding



# Additional Major Capital - 100 Series Twinning

- Program announced in 2017
- Work started in 2018/19
- \$390 M forecast over 7 years
  - Hwy 101 - 3 Mile Plains to Falmouth
  - Hwy 103 - Tantallon to Hubbards
  - Hwy 104 - Sutherlands River to Antigonish
  - Hwy 107 - Sackville Bedford Burnside Connector
- \$30 M contributed to road safety improvements

# New Interchanges - Connectors

- Hwy 102/Lantz Interchange (completed 2021)
- Hwy 102/Aerotech Interchange (completion 2022)
- Bridgewater Interchange (completion 2022/23)
- Cambridge Interchange (completion 2024/25)
  - Approved by Treasury, no Federal contribution
- Future Proposed
  - Argyle - MEC draft preparation (completion 2026/27)

# Typical Construction Costs

- Typical diamond interchange - \$10 - \$15 M
- New 100 series, per km \$ 3 - \$5 M (per two lanes)
- Upgrading - \$750 K - \$1 M per km
- Repaving - full rehab \$400,000 K/km
- Repaving - recycle or two lifts - \$250 - \$300,000/km
- Repaving - pavement preservation - \$100 - \$150,000/km
- Typical single span 30 m bridge \$ 3 M
- Double Chip Seal - \$50,000 - \$100,000/km

# Five Year Highway Improvement Plan - 2022/23

Public Works Minister Kim Masland announced in January 2022, that the Government of Nova Scotia will invest nearly \$500 Million in capital spending on its highways, bridges and roads in 2022-23.

The [Five-Year Highway Improvement Plan](#) includes more than 150 major construction and improvement projects for the coming year that will make Nova Scotia's roads, highways and bridges safer.

# Value of 5 Year Capital Plan

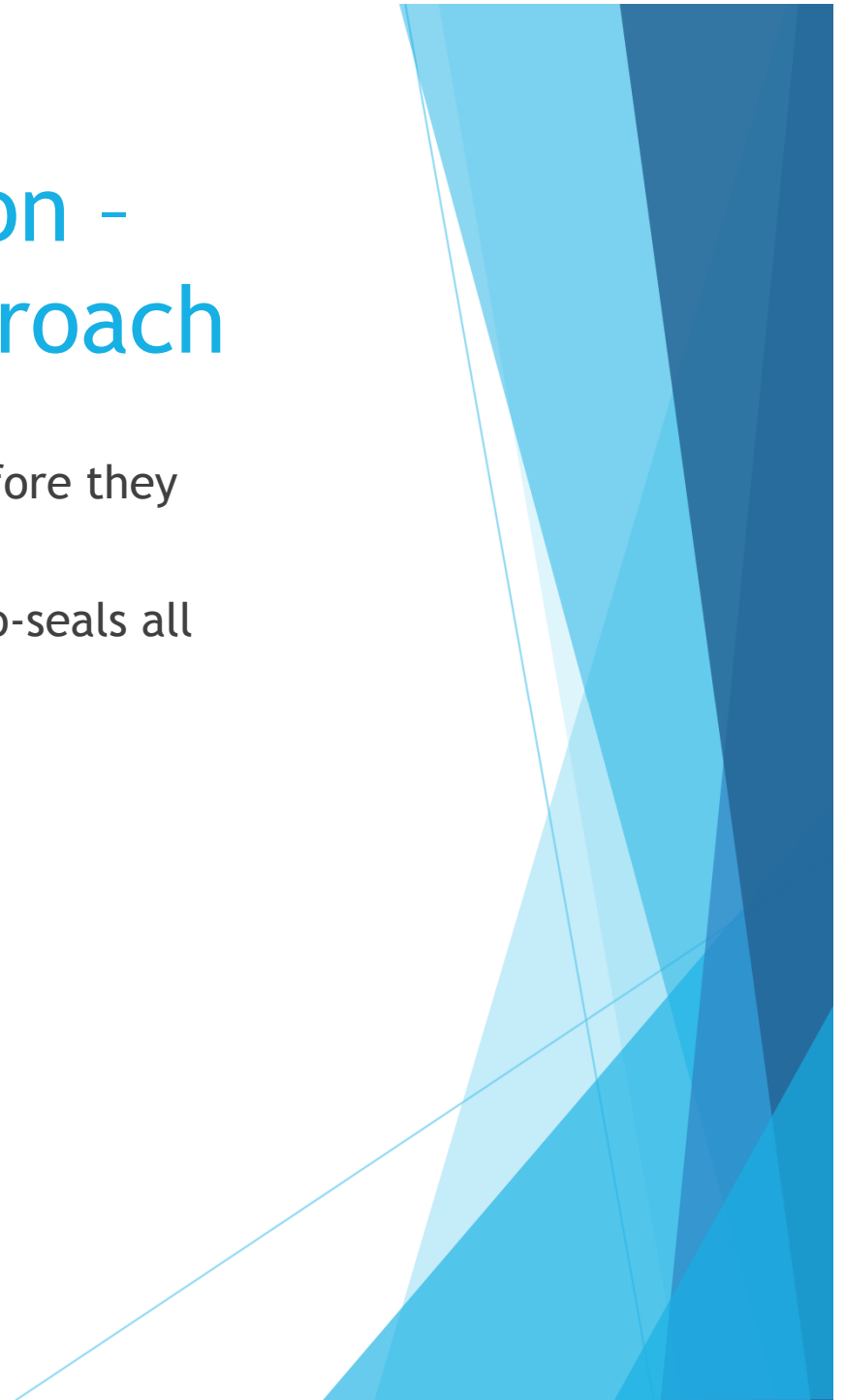
- A public planning/information document outlining the Department's plans for the period 2022/23 until 2026/27.
- Outlines major projects and explains the various programs and how the priorities and projects are determined for each program.
- Promotes transparency and accountability
- Allows Public Works and Industry to better plan and deliver highway infrastructure projects leading to better prices and better quality
- Highway Infrastructure Deficit (backlog of deferred maintenance) has grown from \$3.4 billion in 2001 to over \$4 billion in 2009 despite recent increases in capital budget over last few years.

# Content of 5 Year Plan

- Major twinning and capacity projects for 100 series highways during the next 5 years
- 100 Series repaving projects for next 5 years
- Multi-year repaving/upgrading projects for major trunks and routes over the next 5 years
- Major bridge replacements during next 5 years
- Federal cost shared projects
- Detailed capital program for 2021/22
- Annual release of detailed capital programs for 2022/23 through 2026/27 (upon annual budget approvals)
- Not included are
  - Total Highway Capital Budget
  - Local road repaving projects

# Pavement Preservation - A more Balanced Approach

- Protecting our existing paved roads before they deteriorate
- Thin asphalt overlays, chip seals, micro-seals all protect and extend life of pavements
- Better balance between
  - “pavement preservation” (proactive)
  - “worst first” (reactive)

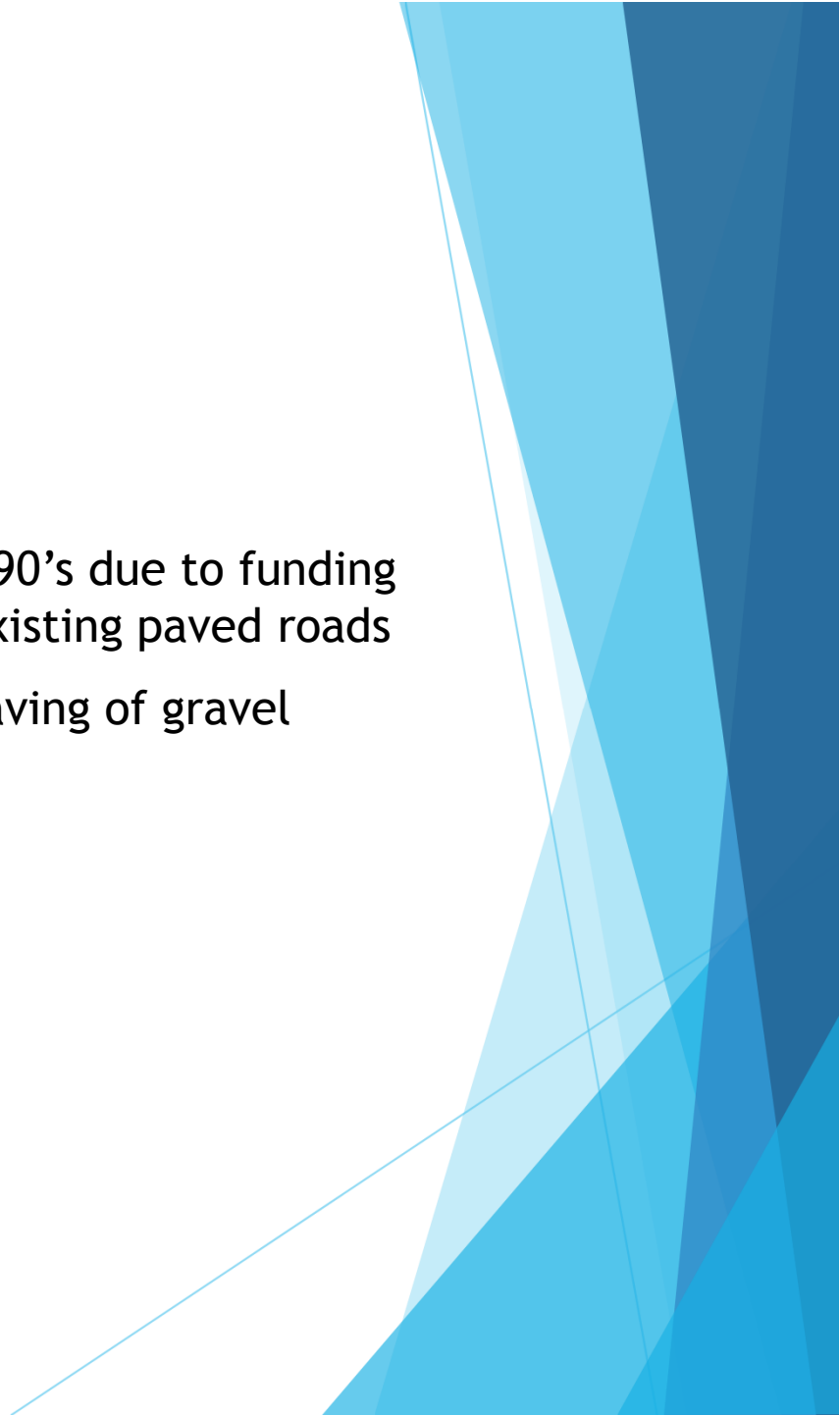


# Paved Roads (excluding 100 series)

- 12,600 km (TK, Rte, local) of paved roads
- Would require repaving 680 km per year for next 10 years to put system back into acceptable condition
- Average over last 4 years is 600 km per year (includes stimulus in 2021)
- Gap of 80 km per year (mostly local roads)
- Paved Roads continue to deteriorate at a rate faster than they are being resurfaced
- Paved road network not sustainable at current funding levels

# Gravel Roads

- 8800 km of gravel roads
- Very little new surfacing since early 1990's due to funding constraints and focus on maintaining existing paved roads
- Public Pressure (pent up demand for paving of gravel roads)



# Gravel Road Program

- \$20 million program for rehabilitation of gravel roads
- Introduced in 2017
- Funding divided among 4 Districts
- Improves safety and life of roads while reducing maintenance costs
- Includes
  - Ditching
  - Culvert replacement
  - Brushcutting
  - Reconstruction of road base
  - Resurfacing

# Low Volume Local Road Stabilization Options

- Surface Stabilization Program for gravel roads and low volume paved roads with priorities based on traffic volumes and roadside development
  - Double Chip Seal (\$65 - \$100k per km)
  - Double Chip on RAC (\$80 - \$100k per km)
  - Asphalt Concrete Pavement (\$225 - \$330 k per km)

# Bridges




# Bridges in Nova Scotia

- A bridge is defined as a structure with a span of three (3) meters or greater
- Approximately 4100 bridges managed by Public Works
- 50% of the bridges are constructed of Timber



# Bridge Inspection Program

- Level I inspections are carried out on all bridges each year
- Level II inspections are based upon the condition identified through the last inspection and range between 1 and 5 years
- Bridge Maintenance Engineer coordinates with the District Bridge Engineers to complete inspections and repairs
- There are four District Bridge Engineers and six Bridge Inspectors that report within the Districts
- There are three Steel Bridge Crews and the Districts have established within the Districts
- There are three Steel Bridge Crews and the Districts have established dedicated crews to work on small bridges
- Bridge funding doubled from \$30M to \$60M this year for bridge rehabilitation and new construction

The slide features several decorative blue geometric shapes. On the left, there is a small light blue triangle pointing upwards. On the right, there is a large, complex graphic composed of overlapping translucent blue shapes, including a tall vertical rectangle and several triangles, creating a layered, abstract effect. The text is centered in the white space between these elements.

# Snow and Ice Control (SNIC) Program

# Winter Resources

- \$ 60 M annually
- 24/7 operation
- 900 to 1200 operators
- 95 Supervisors
- 400 + pieces of snow removal equipment
- 80 bases throughout the province
- 250,000 tonnes of salt used on the roads per year
- 100,000 tonnes of winter sand
- 45 remote weather stations placed throughout the province

# Level of Service (LOS)

- Defines the maintenance standard and timing for types of roads
- Prioritizes service based on road classification, traffic volumes
- Resources assigned and plow routes developed based on LOS
- Current resources allow us to meet standards for more than 90% of all storms

# Level of Services

- Service Level 1
    - All 100 Series Highways & Other High Volume Highways
    - Bare Pavement 8 Hours after snow stops\*
  - Service Level 2
    - Secondary Highways & Other Medium Volume Highways
    - Bare Pavement 12 Hours after snow stops
  - Service Level 3
    - Local Paved Roads
    - Centerline Bare Pavement 24 Hours after snow stops
  - Service Level 4
    - All Gravel Roads
    - Snow Packed and Sanded 24 Hours After snow stops
- \* except when temperature below -10(day)/-7(night)

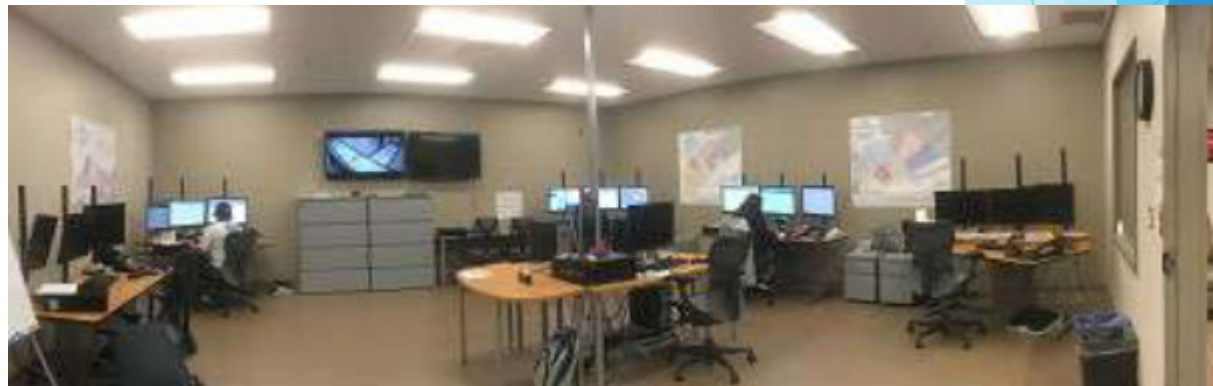


# Maintenance Operations



# Operations Contact Center (OCC)

- Located in Sydney
- Center opened fall of 2016
- 14 staff, 24 hour operation
- Receives most public inquiries/complaints
- Takes message and relays to supervisor
- Call is ticketed for tracking purposes
- Other Departments interested in this model for public enquiries



# Summer Maintenance

- ▶ \$65 M budget
  - ▶ Pothole patching
  - ▶ Inhouse and contracted
  - ▶ Provincial outfits
  - ▶ Bridges
- ▶ RIM Funding
  - ▶ Increased from \$11 M to \$22 M on Core Activities
  - ▶ Includes \$ 6 M for Pavement Preservation

# RIM (Rural Impact Mitigation)

- \$22M for core activities administered through Maintenance & Operations
- Includes \$6M for pavement preservation administered through the Capital Program
- This is dedicated funding, in excess of local budgets
- Core activities includes asphalt patching, gravelling, shouldering, ditching, brush cutting and discretionary funding for each area (guard rail & shoreline protection)
- Allotted based on kilometres or paved and gravel roads, (100 series highways are not included)

# Registry of Motor Vehicles, Inspection & Safety



# Registry of Motor Vehicles (RMV)

- Joined Public Works from SNSMR in October 2015
- Responsible for maintaining vehicle registration, vehicle title and driver licensing information
- Road safety mandate & corresponding activities governed by the Motor Vehicle Act and associated regulations
- The Registrar of Motor Vehicles has oversight over the regulations and administration of the RMV Programming

# Three Operational Branches of RMV

- Driver Licensing
- Driving Schools, Driver Examiners, Vehicle Registration & Police Services
- Records and Compliance



# RMV / Traffic Safety Act (TSA)

- The *Traffic Safety Act* (TSA) was unanimously passed in the fall of 2018
- Its success is dependent on having a RMV system that is responsive to the ever changing needs. **The current technology has operational limitations and cannot accommodate the TSA**
- The new solution will accommodate current and upcoming public facing online services and reduce the public's cost in both time and effort to avail themselves of government information or services
- Capital funding totalling \$14,060,000 for four fiscals has been approved to modernize the Registry of Motor Vehicles. This equates to annual investments of \$3,515,000 which includes 13 recoverable TCA FTEs. Departments commit to return after first year with a project update on costs and progress

# Vehicle Transportation Inspection

## *Mission*

To ensure safety and compliance through education, inspection and enforcement

## *Mandate*

- ▶ To increase the safety of road users (motorists, passengers and pedestrians) and protect the highway infrastructure in NS
- ▶ To enforce specific legislation with respect to commercial and vehicle passenger traffic
- ▶ To interact with industry providing information and guidance on best practices

# Road Upgrading Requests

## How are Highway Improvement Priorities established?

- ▶ Staff feedback from routine patrols and consider maintenance/repair costs (Supervisors, AMs, CMs, DDs)
- ▶ Input / Requests from Public (OCC), Elected officials (MLA's, Munic. Councillors), Industry, General Public and Interest Groups
- ▶ Potholes, Pavement condition and general deficiencies
- ▶ ARAN Vehicle Testing (smoothness, pavement distress, wheel rut depth, strength profile) on selected highways
- ▶ Traffic Volume, Surface Condition,
  - ▶ AM to CM to Director
  - ▶ CEHP and DM meets each MLA annually
  - ▶ Five Year Plan to develop Capital Program
  - ▶ Peer review to determine appropriate treatment
  - ▶ Minister Approval to Tender a Project



Questions / Discussion