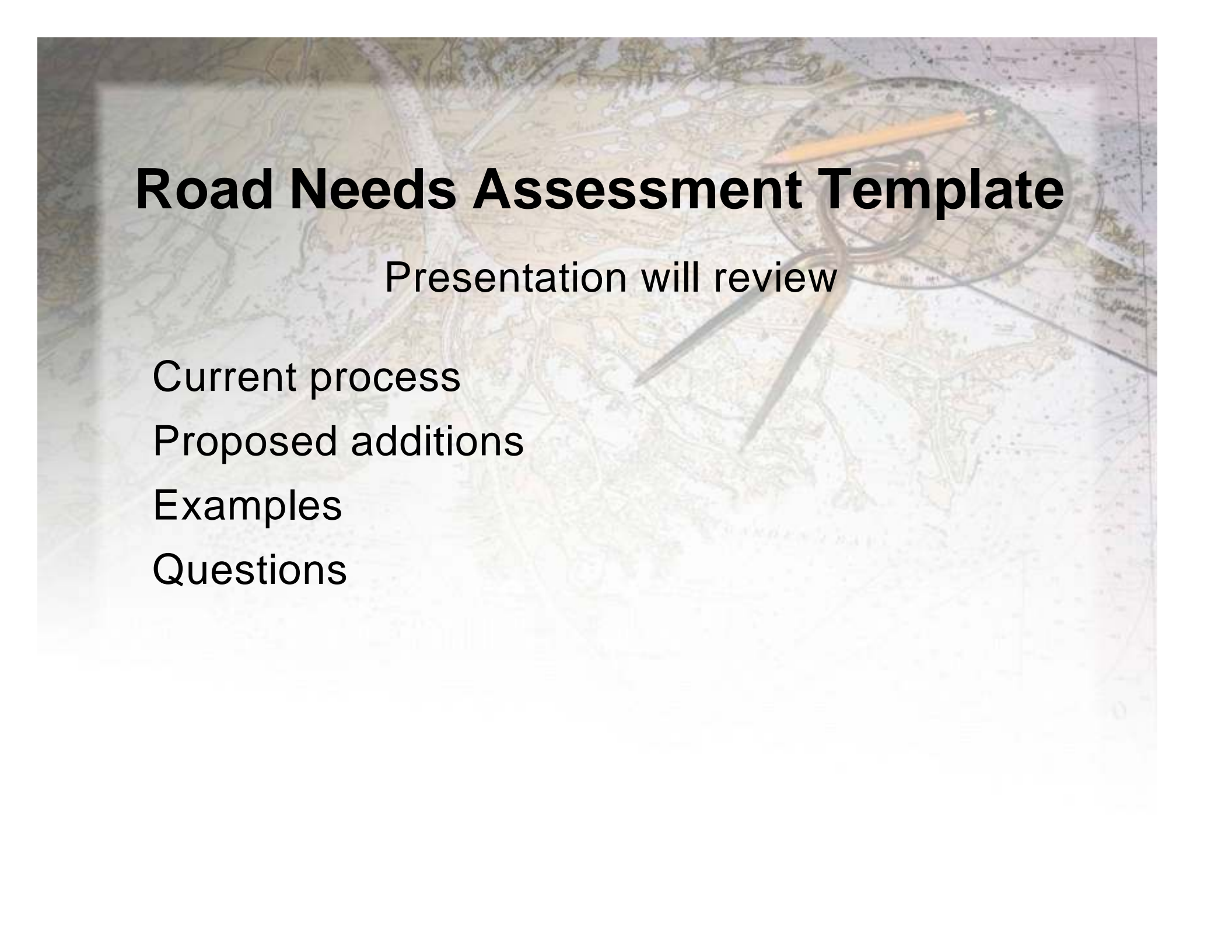


The background of the slide is a faded, artistic image of a topographic map. Overlaid on the map are a pair of drafting compasses and a yellow pencil, suggesting a theme of planning or engineering.

# **Road Needs Assessment Template**

Presentation  
October 12, 2005

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**Director of Roads and Transportation**

The background of the slide is a faded, artistic image of a topographic map. Overlaid on the map are a pair of compasses and a yellow pencil, suggesting a theme of surveying, planning, or engineering.

# Road Needs Assessment Template

Presentation will review

Current process

Proposed additions

Examples

Questions

The background of the slide is a faded, artistic image of a map. A magnifying glass with a wooden handle is positioned over a section of the map, and a yellow pencil lies across the lens. The map shows various geographical features like roads, rivers, and green spaces.

# Road Needs Assessment Template

What is it?

- ♦ Tool used to set priorities for the Capital Road Program
- ♦ Covers all paved roads within the City of Greater Sudbury



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# Road Needs Assessment Template

Current Process


Two Components

Database

Stores information

Analysis

Calculates indices and develops a road program

The background of the slide is a faded, light-colored map showing various geographical features like roads, rivers, and terrain. Overlaid on the map is a magnifying glass with a wooden handle and a yellow pencil, both positioned diagonally across the upper right portion of the slide.

# Road Needs Assessment Template

## Database

### Includes

- road identification
- road background information
- road condition information
  - rutting
  - roughness
  - structural cracking
  - non-structural cracking



# Road Needs Assessment Template



# Road Needs Assessment Template

## Database

- ◆ Information collected using the latest technology
  - ◆ Automatic
  - ◆ Repeatable -year to year
  - ◆ Objective -road to road





# Road Needs Assessment Template

## Analysis

- ◆ Roadway

- ◆ Calculates the Pavement Condition Index (PCI)

$$PCI = 0.15 * RUT + 0.40 * RUFF + 0.30 * STCK + 0.15 * NSTC$$

- ◆ Identifies the rehabilitation strategies

- 10 rehabilitation strategies

- (ie: single grind and overlay, etc. )

- 4 ancillary treatments

- (ie: road widening , drainage improvements,  
curb and sidewalk



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# Road Needs Assessment Template

## Analysis

- ◆ Roadway
  - ◆ Identifies road type
    - ◆ Twelve types
      - ◆ Traffic
      - ◆ Drainage (Soils type)
      - ◆ Road construction
  - ◆ Calculates the benefits and costs for each strategy
  - ◆ Recommends the strategy that gives maximum benefits/cost


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# Road Needs Assessment Template

## ♦ Network

### Analysis

- ♦ Runs an optimization strategy for a defined budget level
- ♦ Analyse the entire network to maximize the benefits/costs
- ♦ Output is fine tuned by staff

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# Road Needs Assessment Template

Proposed

- ♦ Take the process further
- ♦ Consider factors identified by Council
  - ♦ Safety improvements
  - ♦ Water/wastewater priorities
  - ♦ Economic Development opportunities
  - ♦ Traffic congestion/Environmental benefits



The background of the slide is a faded, artistic image of a topographic map. Overlaid on the map is a circular compass with a pencil resting on its edge. The compass is positioned in the upper right quadrant, and the pencil is oriented diagonally across it. The map shows various geographical features like roads, rivers, and terrain contours in muted colors.

# Road Needs Assessment Template

- ◆ Safety index (SI)
  - ◆ Collision rates
  - ◆ Severity of accidents
  - ◆ Geometric deficiencies
  - ◆ 0 (high opportunity) 100 (low opportunity)

The background of the slide is a faded, artistic image of a topographic map. Overlaid on the map is a circular compass with a pencil resting on its edge. The compass is positioned in the upper right quadrant, and the pencil is oriented diagonally across it. The map shows various geographical features like roads, rivers, and terrain contours in muted colors.

# Road Needs Assessment Template

- ◆ Water/Wastewater Index (WI)
  - ◆ Rating of Infrastructure condition
  - ◆ Rating based on how soon the Infrastructure needs to be replaced
  - ◆ 0 (replacement now) 100 (beyond 15 years)

The background of the slide is a faded image of a topographic map. Overlaid on the map is a magnifying glass with a wooden handle and a yellow pencil resting on its rim. The title 'Road Needs Assessment Template' is centered over the map.

# Road Needs Assessment Template

- ◆ Economic Development Index
  - ◆ Identified current projects
    - ◆ Residential
    - ◆ Commercial
    - ◆ Industrial
  - ◆ Identified future Projects
- ◆ Economic benefit to network by road classification
- ◆ 0 (high opportunity) 100 (low opportunity)



The background of the slide features a faded map of a geographical area. Overlaid on the map is a magnifying glass with a wooden handle, positioned over a specific region. A yellow pencil lies horizontally across the top of the magnifying glass's lens. The overall image has a soft, textured appearance.

# Road Needs Assessment Template

- ◆ Traffic Congestion/Environmental Benefits Index (TI)
  - ◆ Include Level of Service calculations based on peak hour volumes and lane capacities
    - ◆ Reduction in congestion and idling reduces green house gas (GHG) emissions
  - ◆ Includes factor for savings in time and fuel for improved road conditions
  - ◆ 0 (high potential) 100 (low potential)

# Road Needs Assessment Template

## Overall Condition Index (OCI)

- ◆ Council directed weighting

|   |              |
|---|--------------|
| ◆ Safety index (SI)                           | 25 %         |
| ◆ Water/Wastewater Index (WI)                 | 20 %         |
| ◆ Economic Development Index (EI)             | 15 %         |
| ◆ Traffic Congestion/Environmental Index (TI) | 10 %         |
| ◆ Pavement Condition Index (PCI)              | <u>30 %</u>  |
| <b>Total</b>                                  | <b>100 %</b> |

- ◆  $OCI = 0.25*SI + 0.20*WI + 0.15*EI + 0.10*TI + 0.30*PCI$

# Road Needs Assessment Template





# Road Needs Assessment Template

♦ Capital Roads Budget -2006 \$20,940,000

|                   | Major Roads  | Minor Roads  |
|-------------------|--------------|--------------|
| % of Budget       | 30 %         | 20%          |
| Budget allocation | \$ 6,282,000 | \$ 4,188,000 |

# Road Needs Assessment Template

- ◆ Overall Condition Index (OCI)





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# Road Needs Assessment Template

- ♦ PMS is a dynamic model
  - ♦ Constantly changing
  - ♦ Require regular updates to the data
  - ♦ Provides objective Assessment of all paved roads
  - ♦ Will show how effective the budget increases are in improving our road system



# Road Needs Assessment Template

Questions?





