



TAM Implementation Journey at Yukon Highways and Public Works

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Outline

- **Background & Context**
- **Activities to Date (years 1-3)**
- **Next Steps (years 4-7)**
- **Lessons Learned**

Background and Context



Yukon Overview

- **37,000 people**
- **20% Aboriginal**
- **Economy:**
 - **Mining**
 - **Tourism**



Yukon – Transportation Network

- 5000 km roads
 - 50% Sealed Roads
 - Chip Seal - BST
 - HMA – Paved
 - 50% Gravel
 - Mostly low volume
- Key Connections
 - Alaska Highway
 - Haines Road
 - South Klondike (Skagway)
 - Dempster Highway
- 132 Bridges
- 4 Airports & 25 Aerodromes

Yukon – Highways and Public Works Organization

- Department of Highways and Public Works →
 - Transportation Division →
 - Transportation Engineering Branch
 - Transportation Maintenance Branch
 - Transport Services Branch
 - Aviation Branch
 - Planning Functions Distributed Among Branches
 - Budget Coordination by Transportation Division Management Team (TDMT)
 - Division Annual Capital and O&M ~\$100 million.

Yukon – Asset Management Background

- Asset Management > 20 yr history
- Surface Management:
 - in-house
 - condition indices based on 10-component manual distress evaluations
 - in-house deterministic deterioration models by structure type, climate zone
- Bridge Management
 - adapted Alberta model
 - Inspections every 2 years



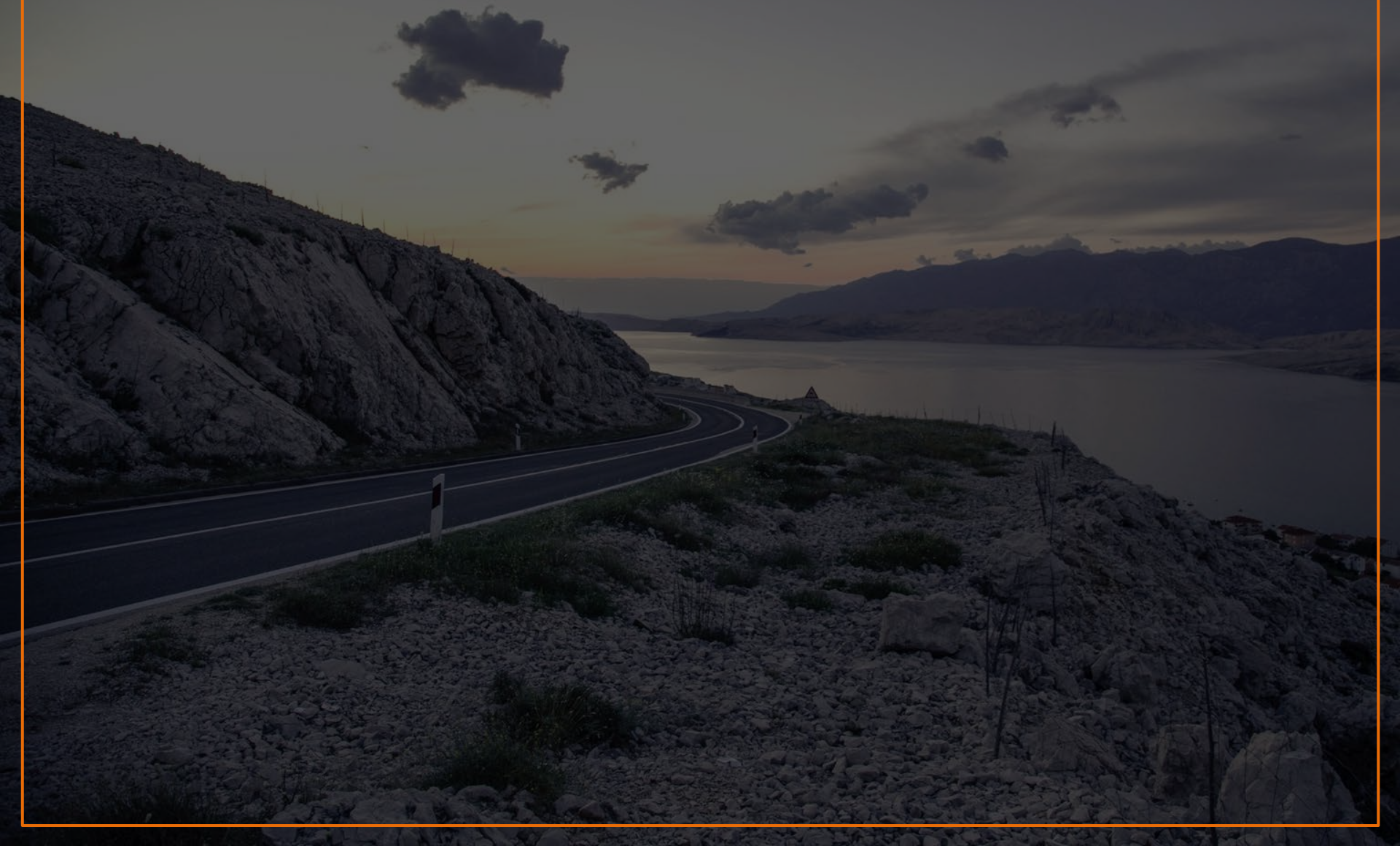
Yukon –
Asset
Management
Background –
Impetus for
New
Roadmap

- Despite having significant TAM capabilities in place for a jurisdiction of comparable size...
- Desire for cross-asset capabilities
- Desire for increased rigour at asset level
- Desire for integrated system
- Desire for more coordinated planning

Yukon –
Asset
Management
Background –
Program
Development
Team

- Sponsors: Branch Managers and Division ADM
- Internal: Representatives from all Branches and Asset Classes
- External:
 - Fireseeds North Infrastructure
 - consultant project manager
 - ‘owner’s engineer’
 - coordinate internal and external resources
 - Opus International Consultants
 - Framework consultant
 - Decisions models consultant
 - Standing Offer Agreement

Activities to Date (years 1-3)



Activities to Date

“adding progressive detail to the roadmap”

- Planning Reform Meetings
- TAM Gap Analysis
- TAM Strategic Plan
- TAM Framework
- TAM Communication Plan
- TAM Service Levels Development
- TAM IT Requirements
 - ‘High-level’ requirements
 - Expressions of Interest
- TAM Decision Models

Planning Reform Meetings

- Cross-Division
- Top-level management support
- Aim: elicit required planning reforms
- Results:
 - **Asset Management Program Development Initiative**
 - Organizational Analysis Initiative
 - Knowledge Transfer Initiative

Planning Reform Meetings

- Cross-Division, 50+ staff
- Top-level management support
- Aim: elicit required planning reforms
- Results:
 - **Asset Management**
 - Organizational Analysis
 - Knowledge Transfer

Gap Analysis

- Modified AAHSTO Gap Analysis
- 50 Questions
- Phone Version for Management Staff
- Web Version for Remainder of Staff

- Value of awareness building exceeded value of gap analysis
- Result: Launch of Asset Management Strategic Planning Project

Asset Management Strategic Plan

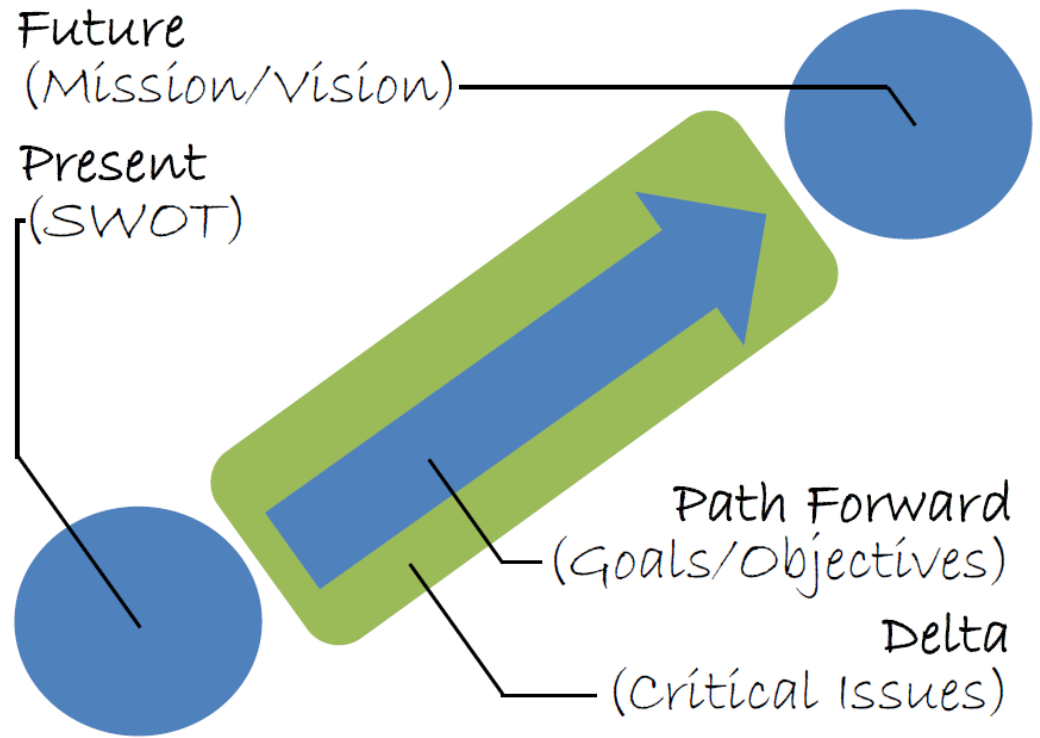
“High level
program
roadmap”

- Program Development Strategic Plan (vs other kinds of plans or strategies)
- Intentions
 - Reflect TAM best practice
 - Align with division strategy
 - Reflect staff aspirations
 - Address key issues
 - Outline high level roadmap

Asset Management Strategic Plan

- Process:
 - Preliminary Reading
 - Preliminary Questionnaires
 - 2 half-day sessions with 50 staff
 - Educational Components
 - Elicitation Components
 - Facilitated using 'Liberating Structures'
 - TAM SME-facilitated
 - Top Management and Asset SMEs participated
- Plan Components
 - TAM Vision
 - TAM Mission
 - TAM Situational Analysis (SWOT)
 - TAM Critical Issues (5)
 - TAM Strategic Goals (5)
 - TAM Strategic Objectives (23)
- Deliverables: 11 page plan + Prezi

Asset Management Strategic Plan



Asset Management Strategic Plan - Critical Issues

- Undefined Service Levels
- Human Resource Needs
- Cross-Asset Capabilities Missing
- Low TAM Communication Effectiveness
- Distributed Knowledge Utilization Required for Engagement

Asset Management Strategic Plan - Results and Next Steps

- Smart Goals and Objectives became implementation roadmap
- Team formed
- Consultant Project Manager retained
- Series of increasing program development budgets to implement strategic plan:
 - \$300K → \$450K → \$1.3M

Asset Management Strategic Plan - Results and Next Steps

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Asset Management Framework - Introduction

“Intermediate-
level roadmap
detail”

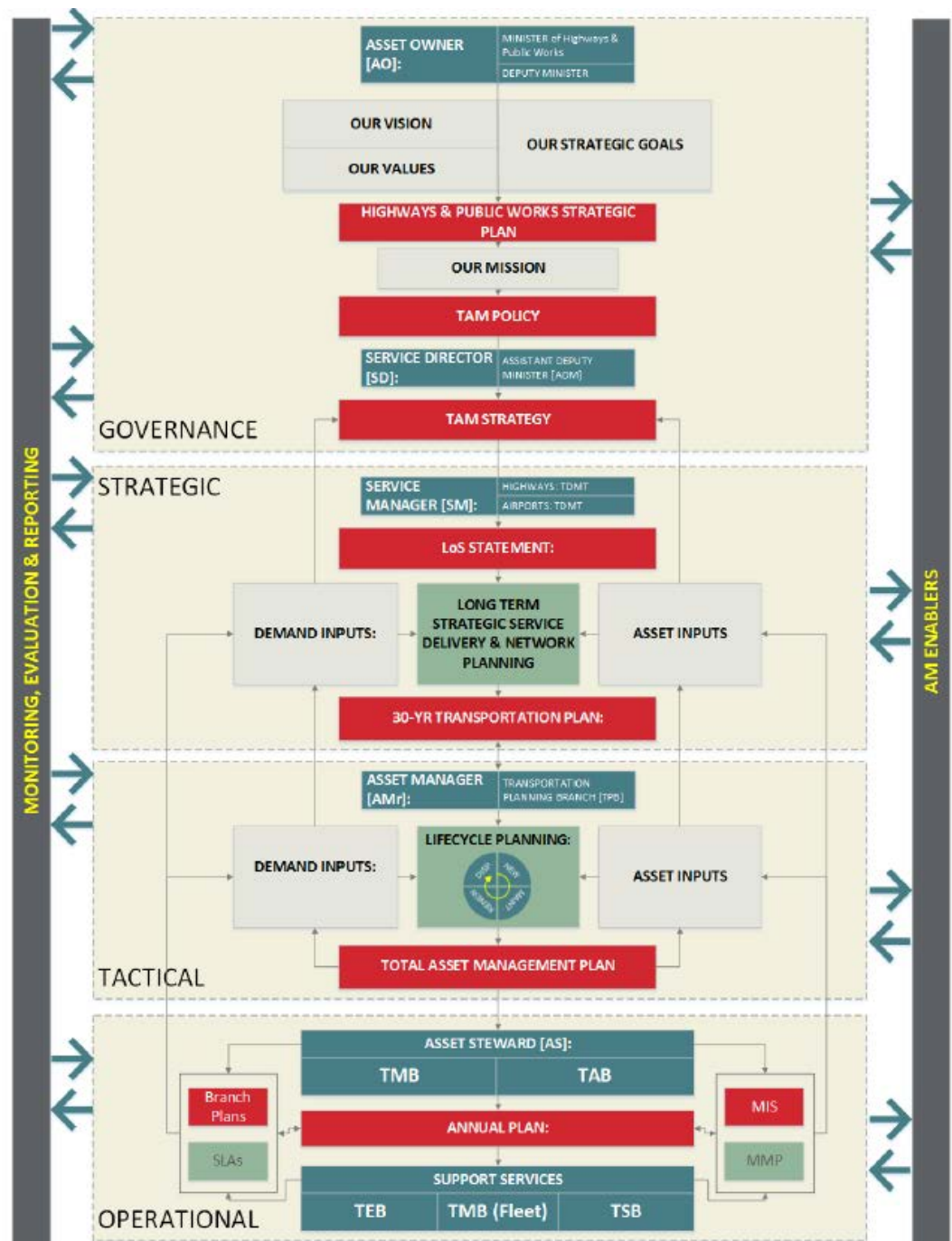
- Intentions:
 - Support strategic plan goals and objectives
 - A shared mental and working model of TAM components, tools, relationships, roles, and interactions
 - A more detailed roadmap
- Process:
 - Retained OPUS international consultants
 - OPUS led several facilitated workshops
 - Prepared conceptual then detailed framework
 - Emphasis on business process and organization

Asset Management Framework - Scope

- Practice Level Assessment
- Current State Documentation
- Future State
- Governance and Strategy
- Organizational Structure
- Processes and Systems
- Resource Requirements

- 160 page report

Asset Management Framework – 4 layer diagram (OPUS)



Asset Management Framework – Key outcomes

- Intention to form Transportation Planning Branch
- Launch Decision Models Project
- Launch Software High level Requirements and EOI

Asset Management Framework – Key outcomes

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- Launch Decision Models Project
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Asset Management – Communication Plan

- Team formed
- Series of workshops held
- Resourcing TAM training
- Some communication challenges
 - Constant project awareness not always maintained
 - Individual business unit owners launch overlapping projects
- Attention needed on Scope
- Attention needed on Terminology

Asset Management – Level of Service Development

- Commitment from beginning to:
 - Customer focus
 - Tiered service levels
 - Customer
 - Asset
 - Activity
 - Resource
 - Hierarchical service levels
 - Primary A, Primary B, etc
- Customer components
 - Safety
 - Reliability
 - Efficiency

Additional outcome component:

- Sustainability
- LOS white paper

Asset Management – IT Requirements

“The roadmap
for the IT
system
acquisition and
implementation”

- Challenge: Can we define what we need from IT
 - Based on business processes
 - Using the roadmaps as developed to date?
- Background: Diversity of IT approaches within team
 - Speed
 - Try & buy vs long & detailed
 - Adaptation
 - Business processes vs software

Asset Management – IT Requirements

“The roadmap
for the IT
system
acquisition and
implementation”

- Activities
 - Requirements elicitation by non SMEs
 - IAG Requirements Management Consultants
 - Internal Functional and Business Analysts
 - Several weeks of team sessions
 - OPUS and FNI participated
- Outputs
 - 700+ functional requirements
 - 900+ pages of requirements documentation in RFEOI
 - 4 RFEOI participants, demos, evaluation
- Outcomes
 - Launch decision models project to more clearly define some framework components
 - Add more detail to LOS

Decision Models Functional Design

“roadmap for
decision
making”

- Framework identified:
 - Network level decision model
 - Asset level decision models
 - Strategic, tactical, and operational components
- Additional clarity required for IT and business unit implementation

Decision Models Functional Design

“roadmap for
decision
making”

- Decision model objectives:
 - Define activity types, use rules, LOS impacts
 - Set LOS targets
 - Predict LOS (customer and LOS components)
 - Identify LOS gaps (current and future)
 - Generate lifecycle treatment options
 - Analyze options (optimization)
 - Individual Asset
 - Asset Class
 - Network level
 - Define data requirements
 - Flexible for ‘what-if’ analysis

Decision Models Functional Design

“roadmap for
decision
making”

- Project is ongoing
- 2nd draft of decision models has been submitted
- Key challenges
 - Assessing Value of LOS Gaps
 - Predicting LOS (customer components)

Next Steps (Years 4-7)



Next Steps

- Finalize Decision Models
- Refine LOS
 - Target Setting
 - Predictive Ability
 - Costing
- IT Procurement
- New Data Collection
- Run Decision Models
- Calibrate and Refine

Lessons Learned



Engagement

- Building engagement was easier than containing it
 - People care about budget allocation
 - People know it can be done better
 - Participatory processes used (liberating structures)
- Non-contained engagement
 - Because people care about budget allocations...
 - Side projects launched that overlap in scope
 - Constant communication required with all stakeholders

Speed

- Yukon government has not rushed any aspect of the project
- Principles of project failure risk mitigation used throughout
- Progressively more detailed roadmaps are being prepared
 - Sometimes it feels painfully slow
 - However, 'mapping' decisions taken at subsequent stage (e.g. decision models design) show danger of planning

Questions

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