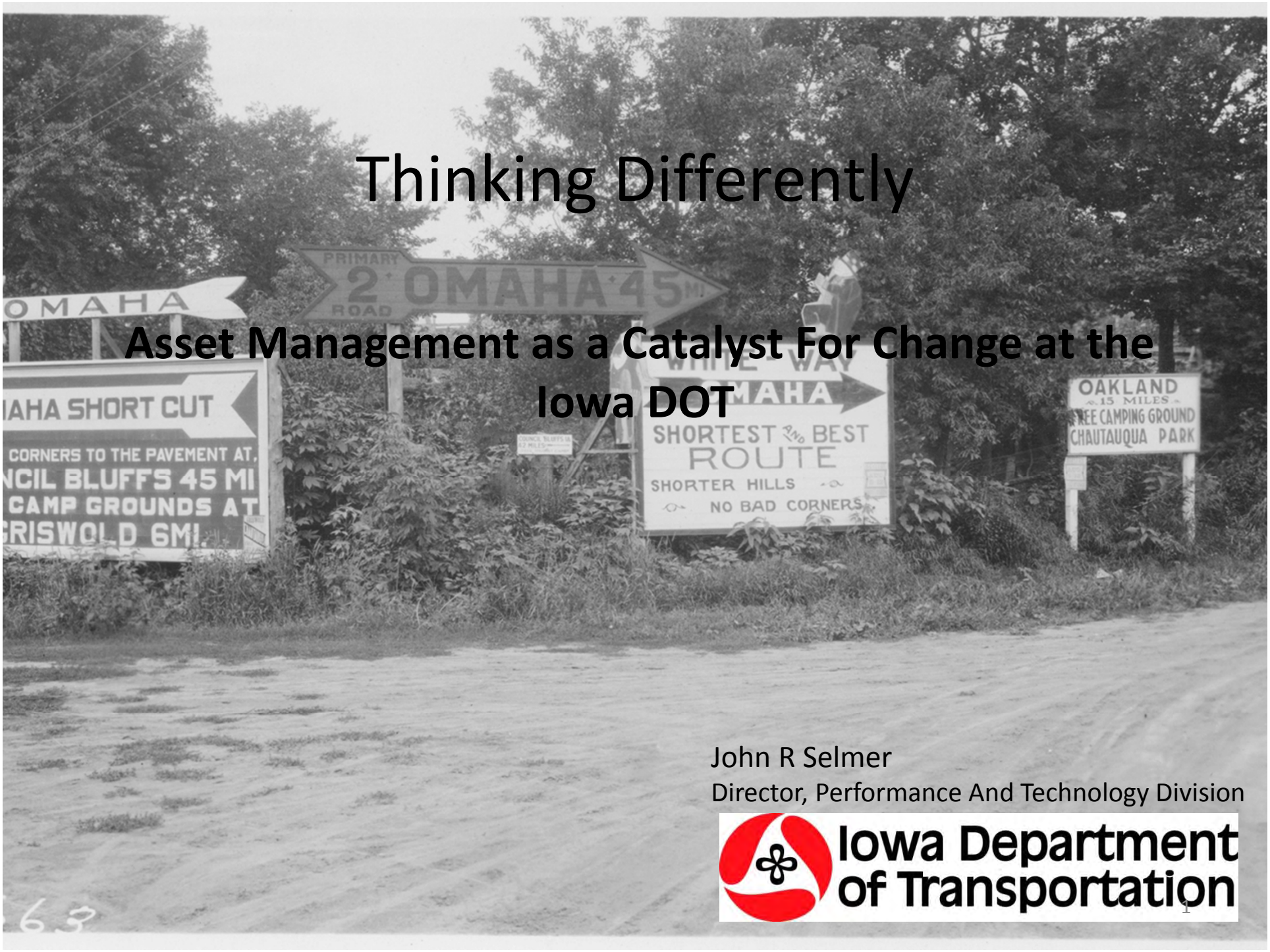


Thinking Differently

Asset Management as a Catalyst For Change at the Iowa DOT

John R Selmer
Director, Performance And Technology Division

Iowa Department of Transportation

What is Transportation Asset Management?

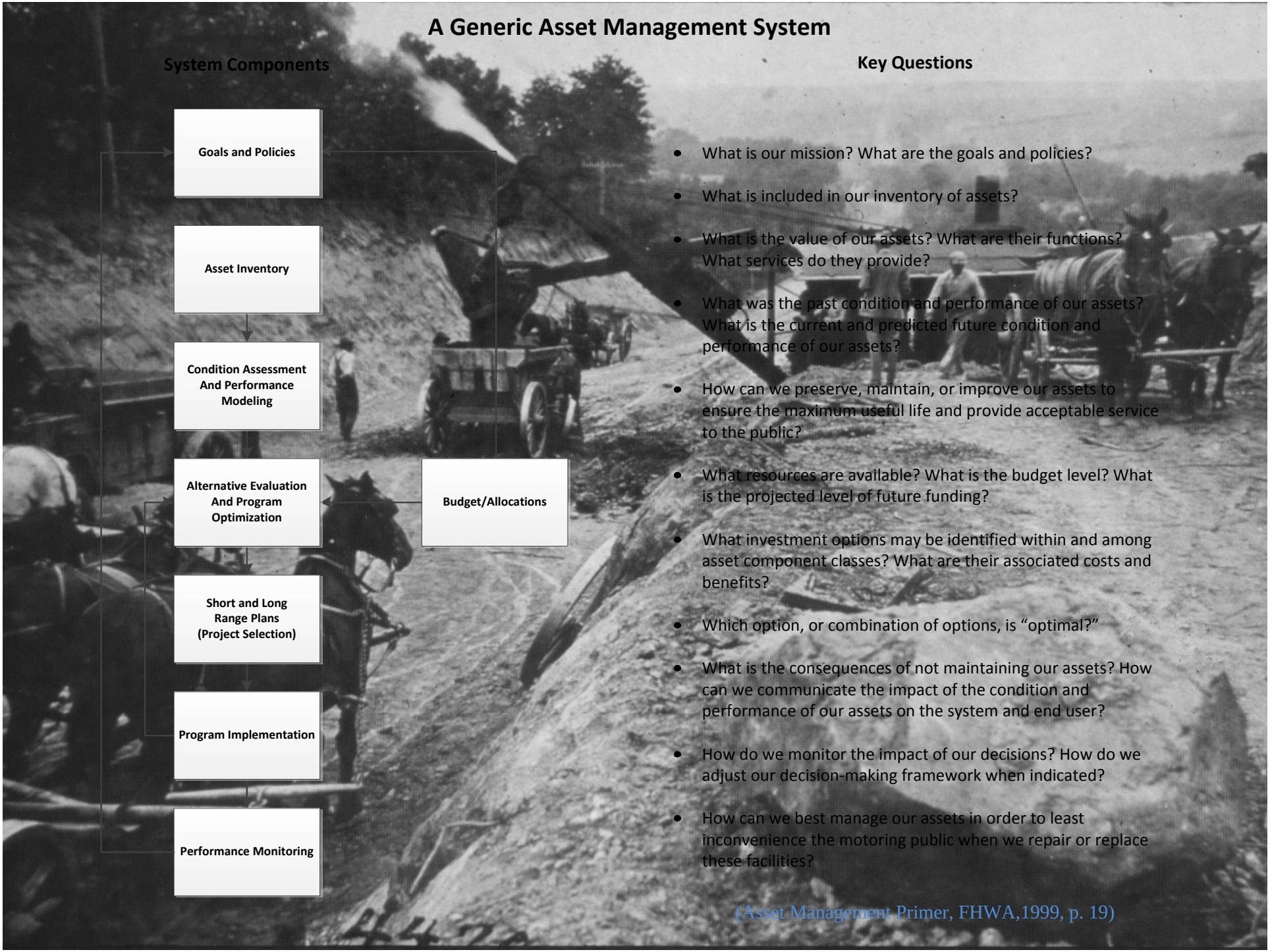
- We all do it now – Some better than others

- AASHTO definition - *"Transportation Asset Management is a strategic and systematic process of operating, maintaining, upgrading and expanding physical assets effectively throughout their lifecycle. It focuses on business and engineering practices for resource allocation and utilization, with the objective of better decision making based upon sound quality information and well defined objectives."*

AASHTO Subcommittee on Asset Management

Simply put – It is investing at the right time with the right strategy maximizing benefit using both engineering and business practices

A Generic Asset Management System



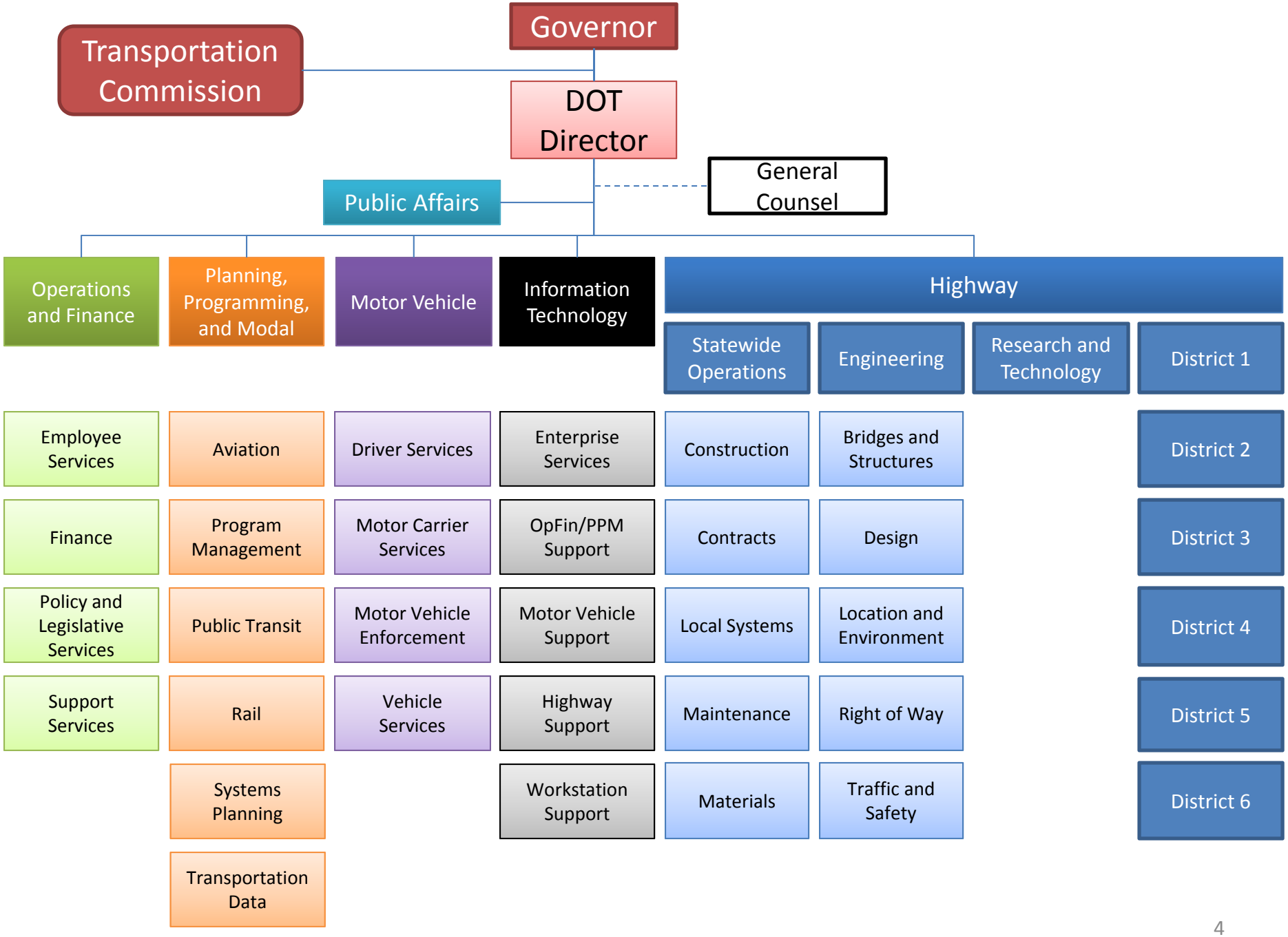
System Components

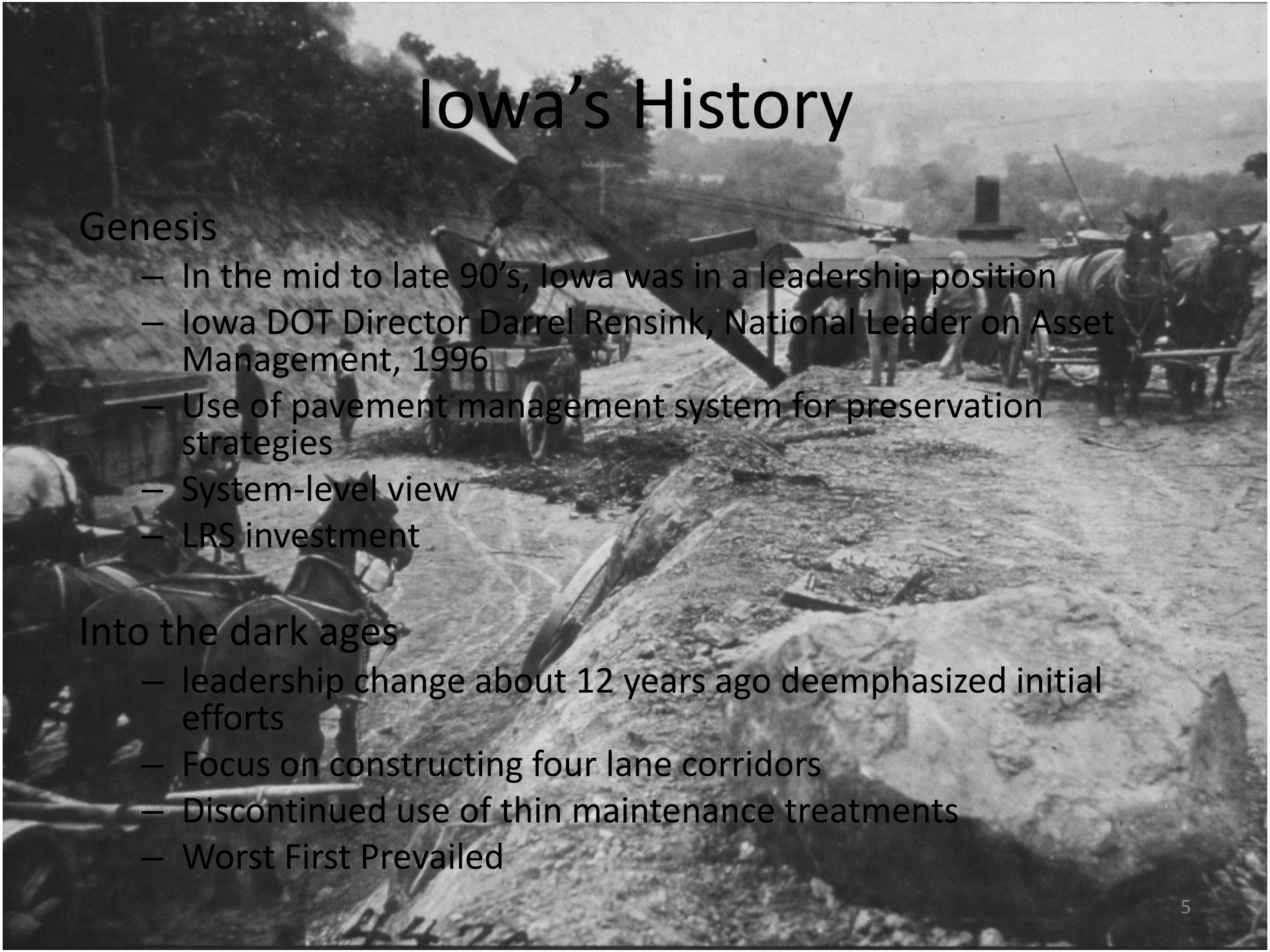
- Goals and Policies
- Asset Inventory
- Condition Assessment And Performance Modeling
- Alternative Evaluation And Program Optimization
- Budget/Allocations
- Short and Long Range Plans (Project Selection)
- Program Implementation
- Performance Monitoring

Key Questions

- What is our mission? What are the goals and policies?
- What is included in our inventory of assets?
- What is the value of our assets? What are their functions? What services do they provide?
- What was the past condition and performance of our assets? What is the current and predicted future condition and performance of our assets?
- How can we preserve, maintain, or improve our assets to ensure the maximum useful life and provide acceptable service to the public?
- What resources are available? What is the budget level? What is the projected level of future funding?
- What investment options may be identified within and among asset component classes? What are their associated costs and benefits?
- Which option, or combination of options, is “optimal?”
- What is the consequences of not maintaining our assets? How can we communicate the impact of the condition and performance of our assets on the system and end user?
- How do we monitor the impact of our decisions? How do we adjust our decision-making framework when indicated?
- How can we best manage our assets in order to least inconvenience the motoring public when we repair or replace these facilities?

(Asset Management Primer, FHWA,1999, p. 19)


Governor
Transportation Commission
DOT Director
General Counsel
Public Affairs
Operations and Finance
Planning, Programming, and Modal
Motor Vehicle
Information Technology
Highway
Statewide Operations
Engineering
Research and Technology
District 1
Employee Services
Aviation
Driver Services
Enterprise Services
Construction
Bridges and Structures
District 2
Finance
Program Management
Motor Carrier Services
OpFin/PPM Support
Contracts
Design
District 3
Policy and Legislative Services
Public Transit
Motor Vehicle Enforcement
Motor Vehicle Support
Local Systems
Location and Environment
District 4
Support Services
Rail
Vehicle Services
Highway Support
Maintenance
Right of Way
District 5
Systems Planning
Workstation Support
Materials
Traffic and Safety
District 6
Transportation Data



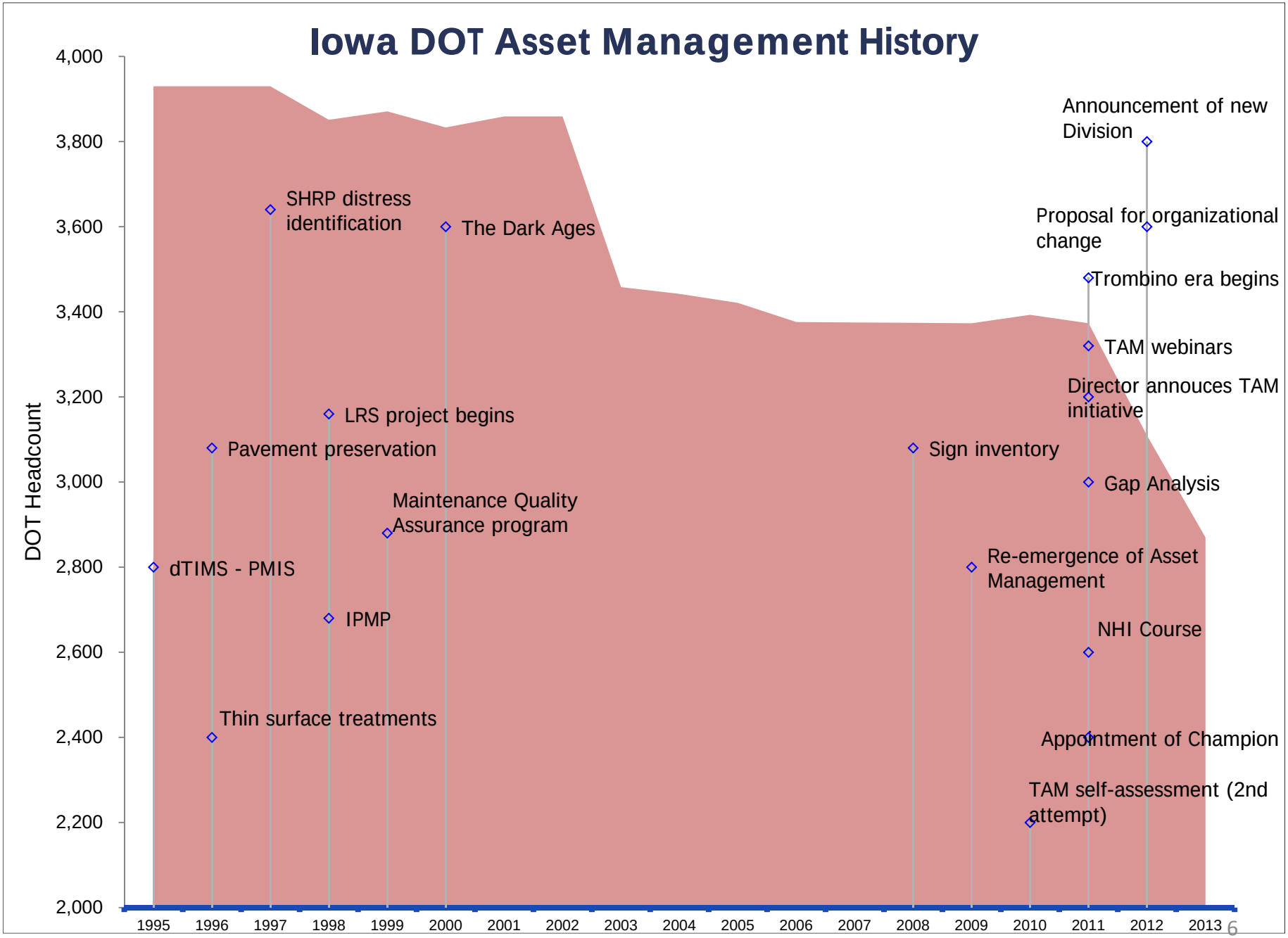
Iowa's History

Genesis

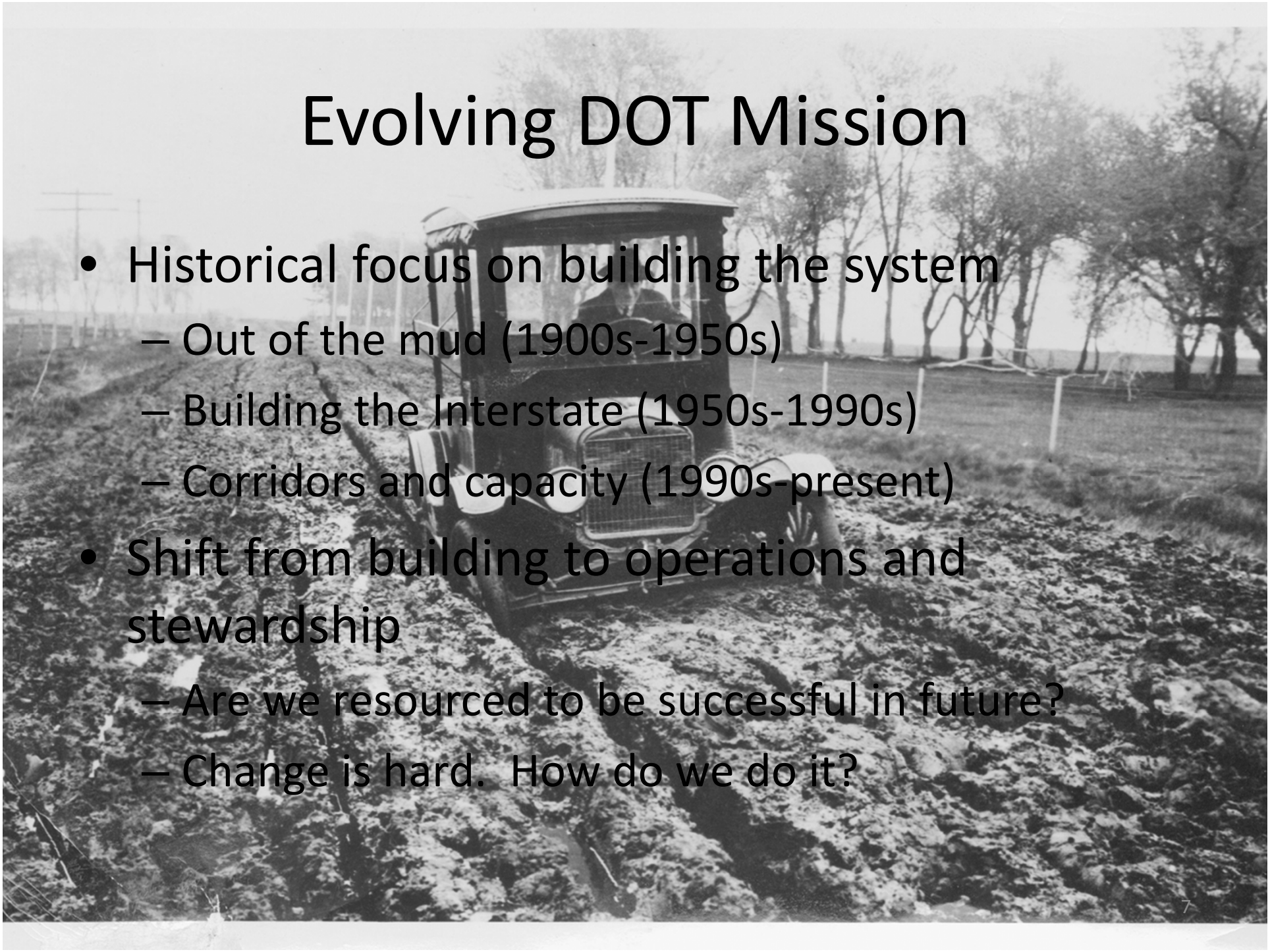
- In the mid to late 90's, Iowa was in a leadership position
- Iowa DOT Director Darrel Rensink, National Leader on Asset Management, 1996
- Use of pavement management system for preservation strategies
- System-level view
- LRS investment

Into the dark ages

- leadership change about 12 years ago deemphasized initial efforts
- Focus on constructing four lane corridors
- Discontinued use of thin maintenance treatments
- Worst First Prevailed


Iowa DOT Asset Management History
DOT Headcount
4,000
3,800
3,600
3,400
3,200
3,000
2,800
2,600
2,400
2,200
2,000
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Announcement of new Division
Proposal for organizational change
Trombino era begins
TAM webinars
Director annouces TAM initiative
Gap Analysis
NHI Course
Appointment of Champion
TAM self-assessment (2nd attempt)
SHRP distress identification
The Dark Ages
LRS project begins
Pavement preservation
Maintenance Quality Assurance program
dTIMS - PMIS
IPMP
Thin surface treatments
Sign inventory
Re-emergence of Asset Management

Evolving DOT Mission



- Historical focus on building the system
  - Out of the mud (1900s-1950s)
  - Building the Interstate (1950s-1990s)
  - Corridors and capacity (1990s-present)
- Shift from building to operations and stewardship
  - Are we resourced to be successful in future?
  - Change is hard. How do we do it?

Initial Steps

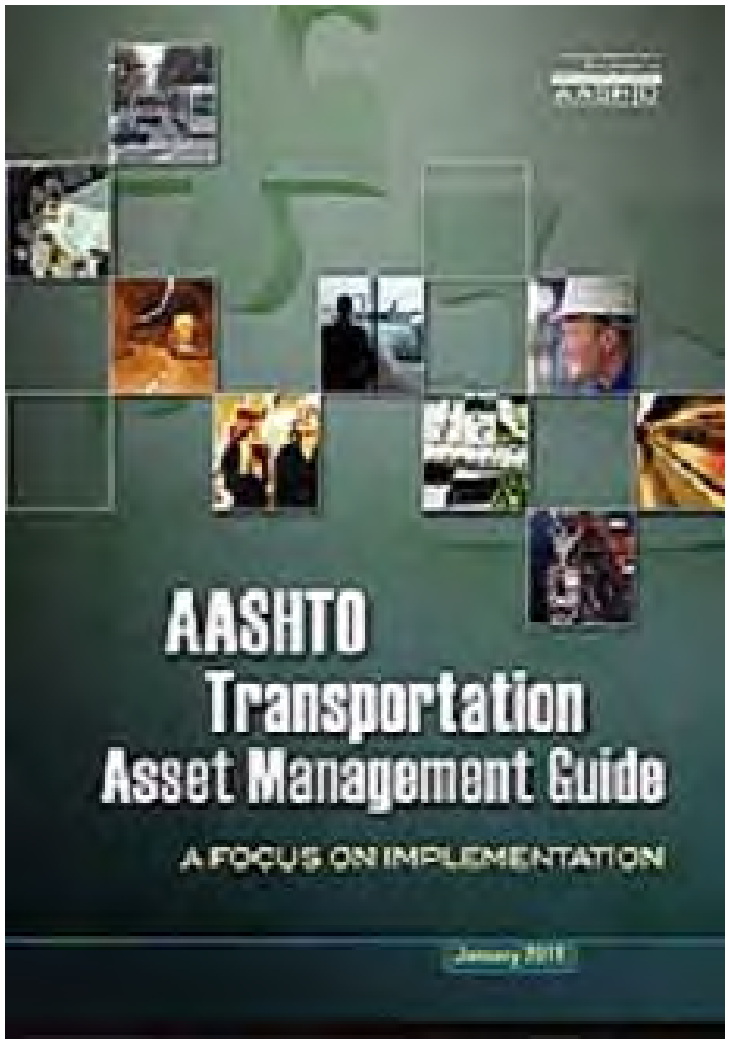
- NHI Training
- Conferences, committees
- Champion identified and committees created
  - Executive support
  - Steering committee
  - Technical committee
  - Working group
- Self-assessment

Directive: "Build a world-class asset management system"

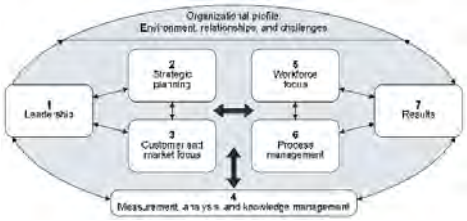
Okay… now what?

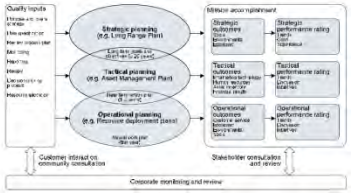
Appeared on our Doorstep

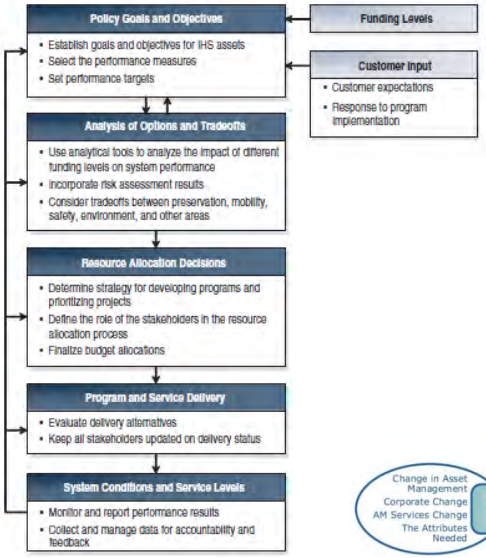
- Trojan rabbit

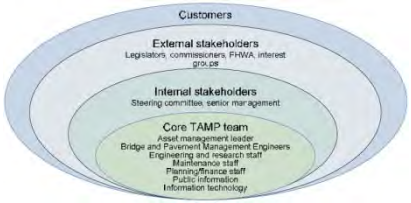


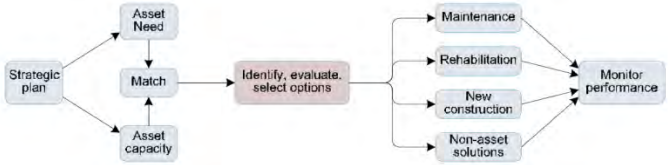
We've got Flowcharts

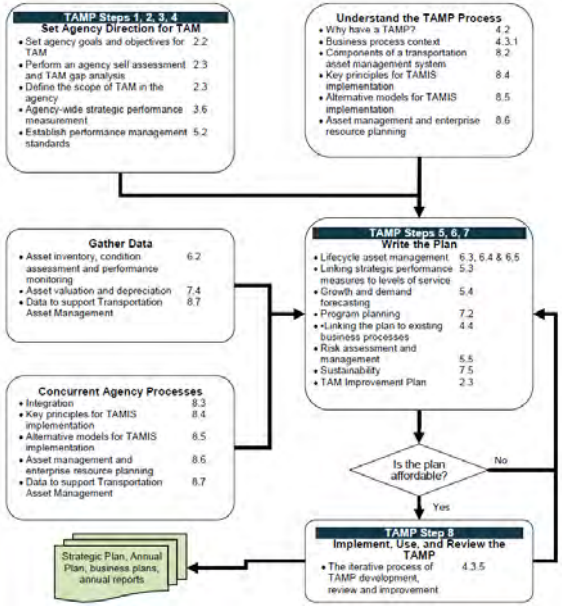


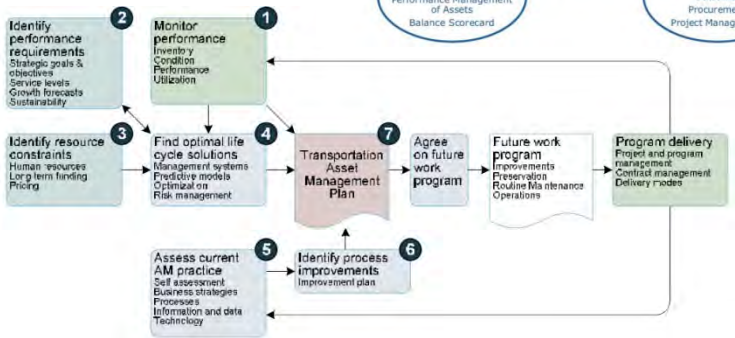


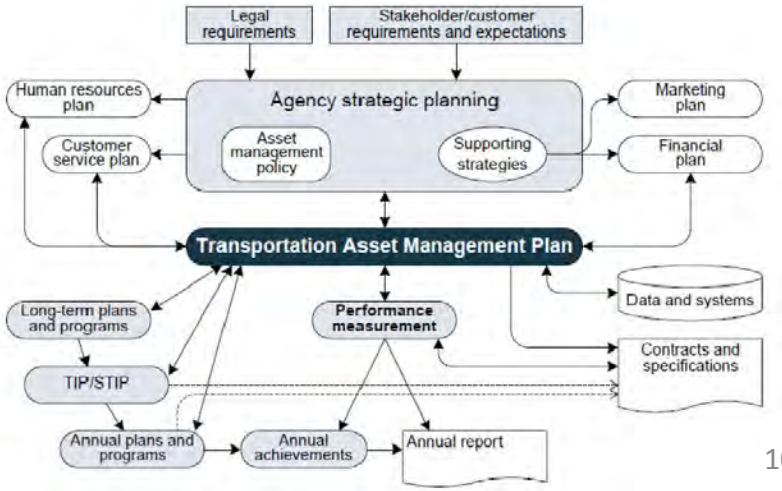








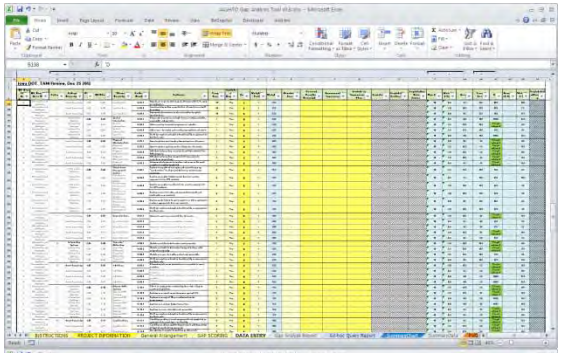


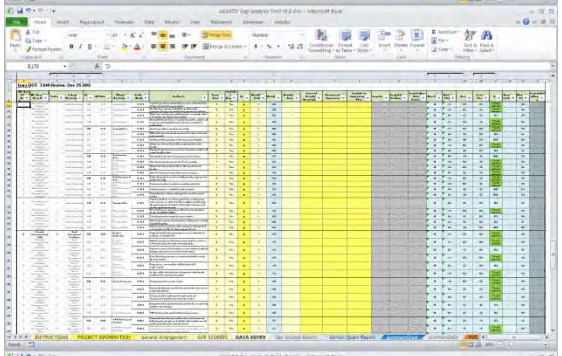


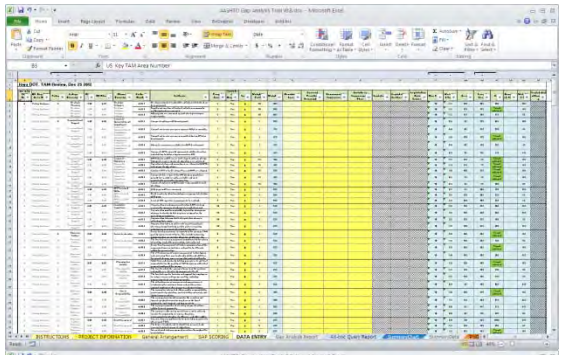
Gap Analysis

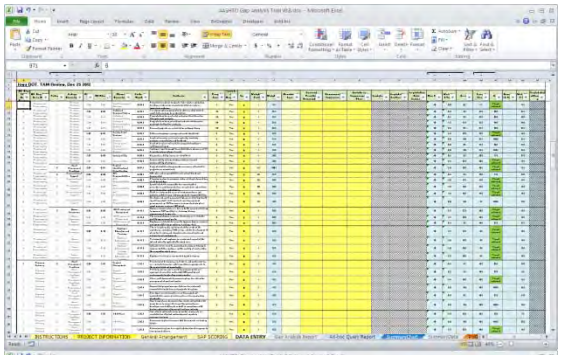
	Maturity Scale	Processes	Frequency	Sub-element Emphasis	Process Formality	Data & Technology	Outputs & Results		
0								0%	Initial
1	Level 1 - Initial	Initial stages of inquiry; focus is on literature search and peer reviews/calls	Occasionally do this	Receives minimal emphasis; some efforts underway	Done informally only; ad hoc procedures; minimal documentation; no organizational integration	Manual system exists; plans for automated system in place	Minimal results; long way to go	10%	Initial
2								20%	Initial
3	Level 2 - Awakening	Identify nature/extent of capital assets; prompted by new financial reporting	Sometimes done on needed basis for programs and a		integration	Automated system exists; meets basic needs	Some results; still below expectations	30%	Awakening
4								40%	Awakening
5	Level 3 - Structured	Processes identify, assess, and value infrastructural assets; focus on preservation and replacement/ rehabilitation	Often do this on many programs and activities	Generally emphasized; something that is done and checked	Formal process exists, modestly documented; good but still evolving; some organizational integration	Good system in place; widely available; meets all key user needs	Good results getting there	50%	Structured
6								60%	Structured
7	Level 4 - Proficient	Processes extend to life-cycle development and preservation	Usually do this; omitted only in exceptional circumstances	Strongly emphasized; used to measure and reward by	Formal documented process; well-tested and well followed; considerable organizational integration	Strong system in place; fully integrated; meets nearly all user needs	Excellent results; still some room to improve	70%	Proficient
8								80%	Proficient
9	Level 5 - Best practice	Fully integrated processes; across all functions; flexible to change	Always do this; standard operating procedure	Heavily emphasized; one of the principles by which business is done	Mastery of formal processes; well-documented, standardized; full organizational integration	State-of-the-art system in place; always seeking betterment	Unparalleled results; fully engaged organization; a total success	90%	Best practice
10								100%	Best practice

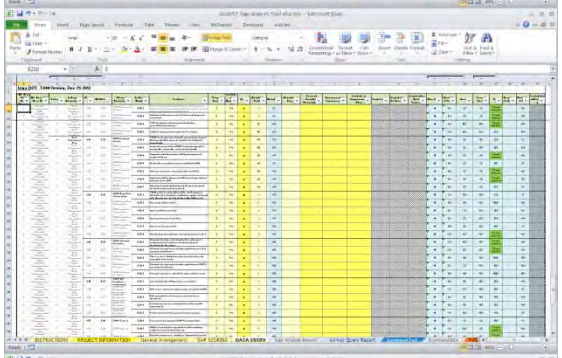
Maturity scale

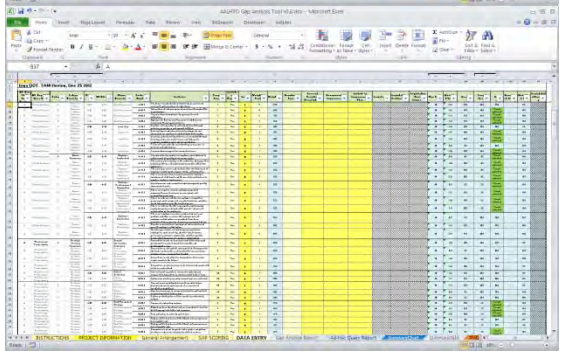


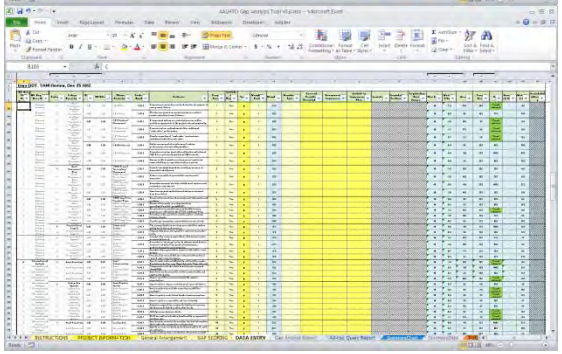


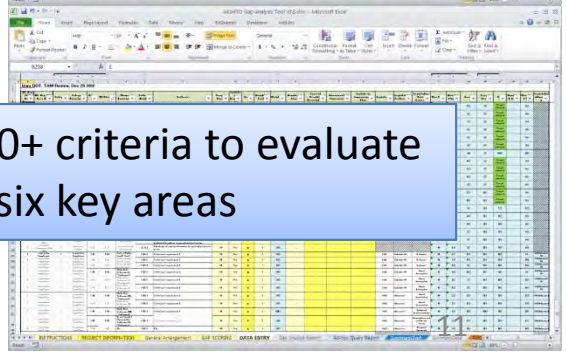




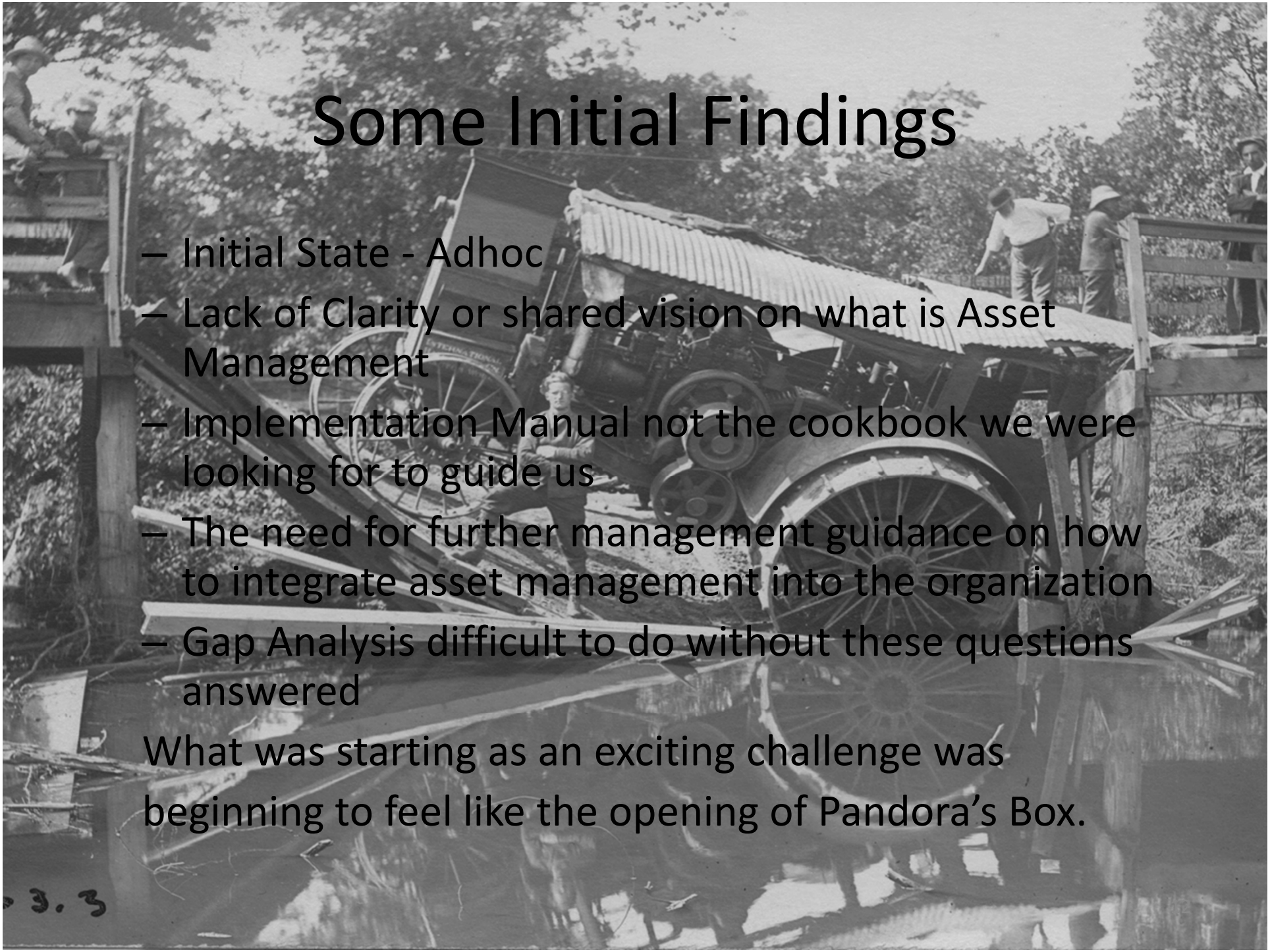








260+ criteria to evaluate in six key areas



Some Initial Findings

- Initial State - Adhoc
- Lack of Clarity or shared vision on what is Asset Management
- Implementation Manual not the cookbook we were looking for to guide us
- The need for further management guidance on how to integrate asset management into the organization
- Gap Analysis difficult to do without these questions answered

What was starting as an exciting challenge was beginning to feel like the opening of Pandora's Box.

Fill in the Blank

- _____ Management
  - Asset?
  - Performance?
  - Risk?
  - Resource?
  - *Ad infinitum…*

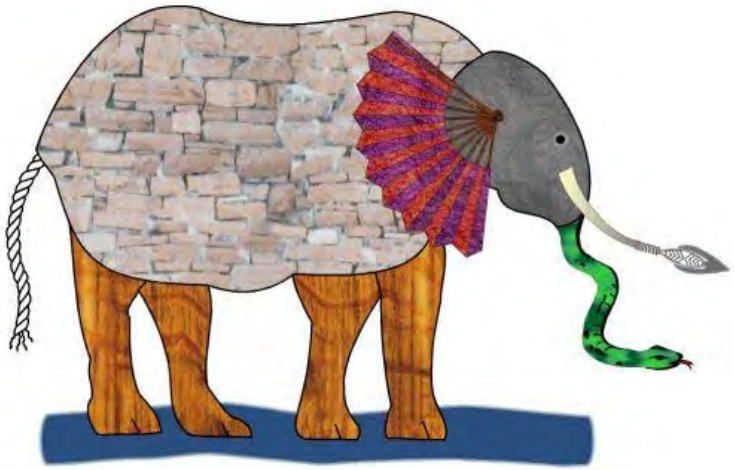
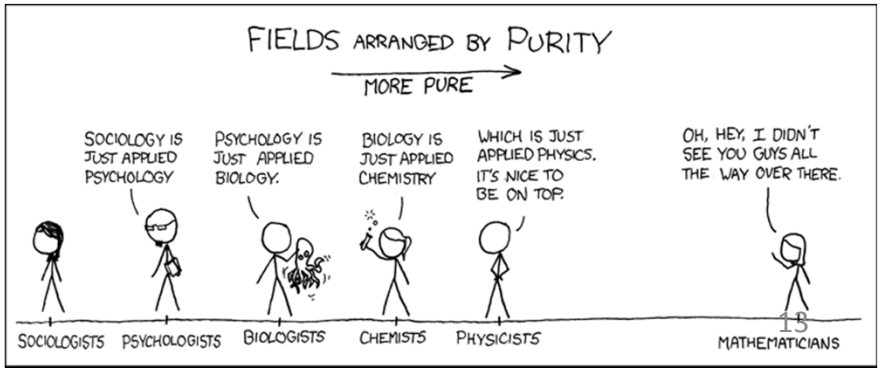
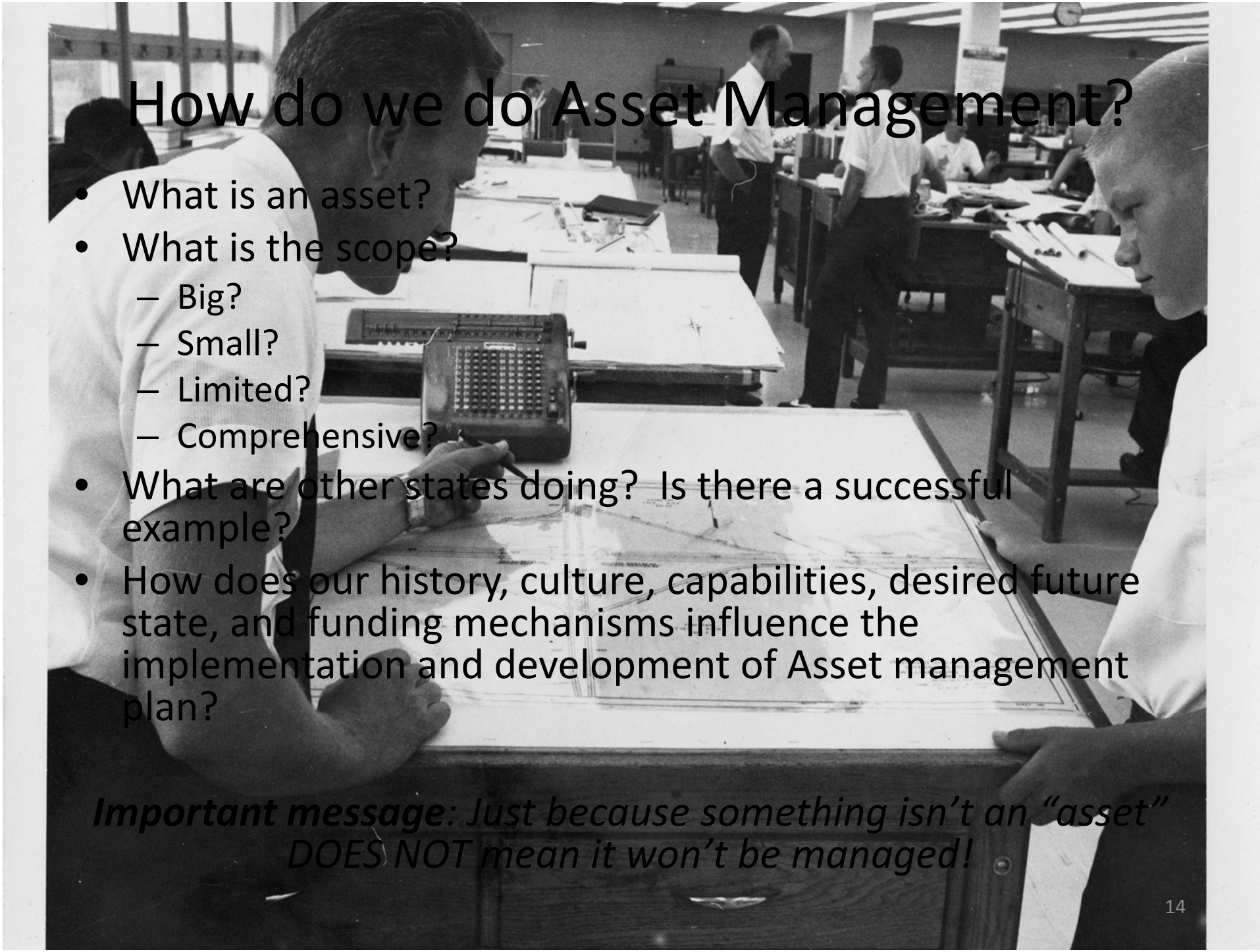


Illustration: © 1999 by Jason Hunt

- Do these all exist on an equal footing, and are they inter-dependent?

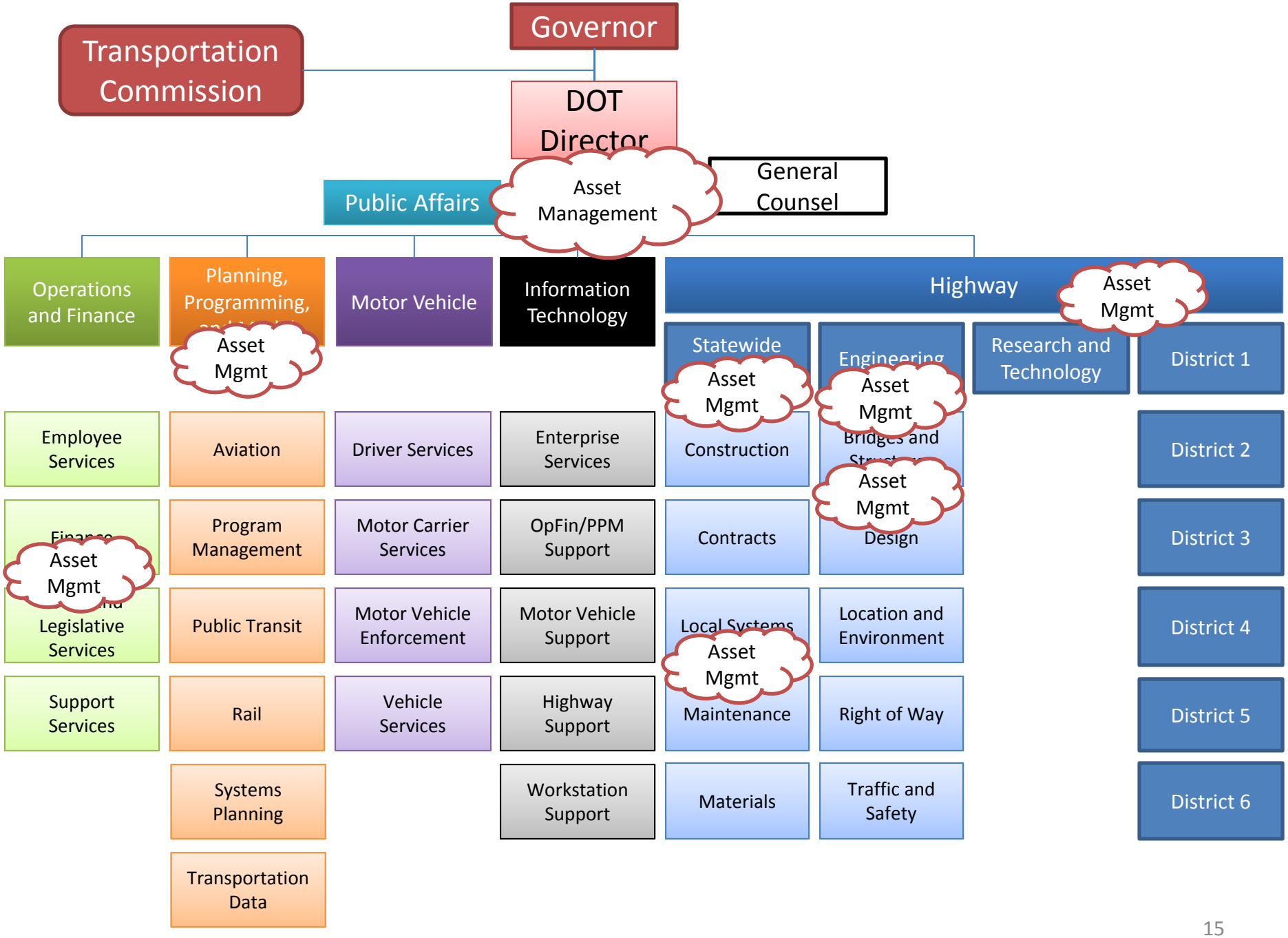




How do we do Asset Management?

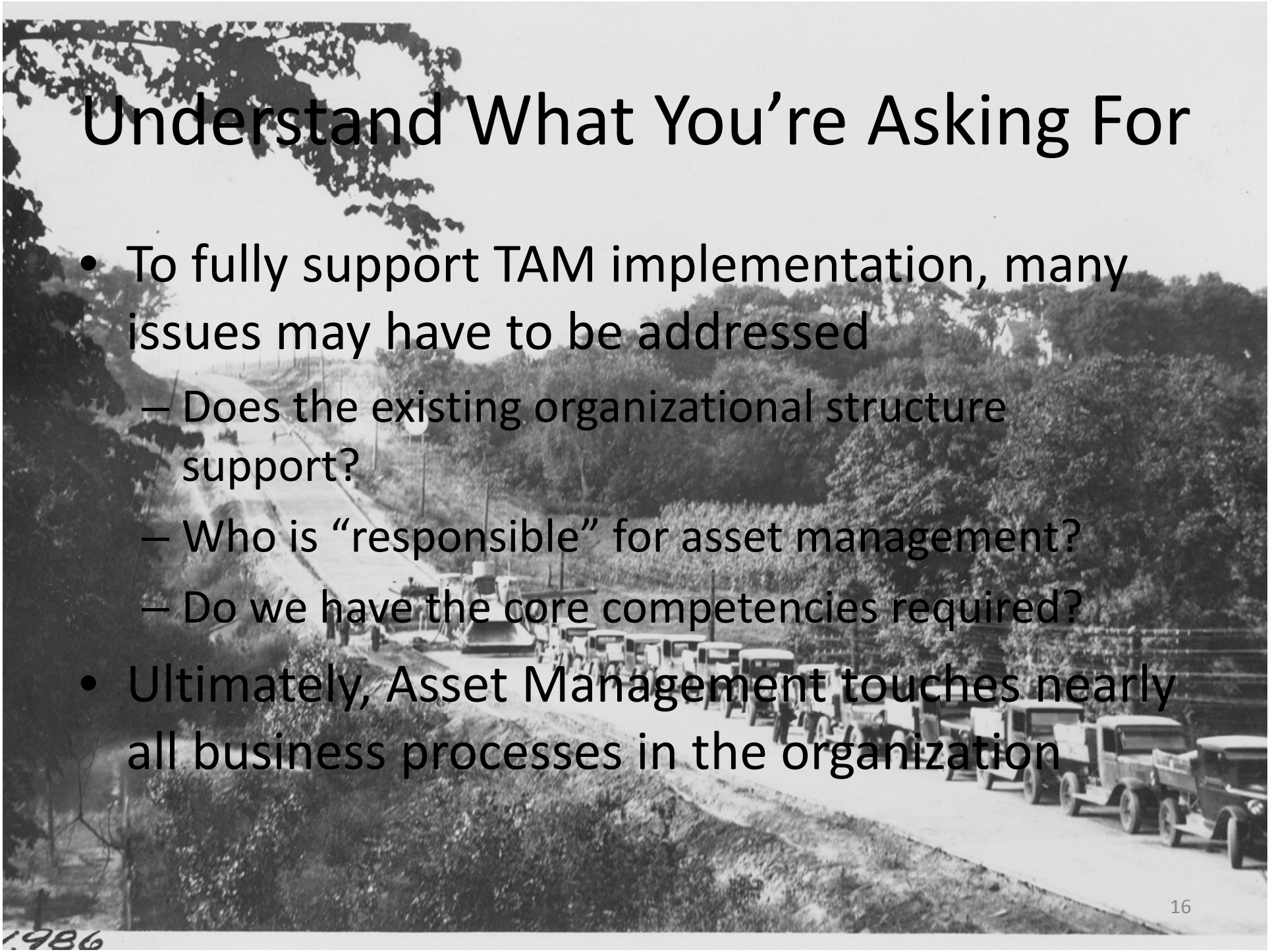
- What is an asset?
- What is the scope?
  - Big?
  - Small?
  - Limited?
  - Comprehensive?
- What are other states doing? Is there a successful example?
- How does our history, culture, capabilities, desired future state, and funding mechanisms influence the implementation and development of Asset management plan?

***Important message**: Just because something isn't an "asset" DOES NOT mean it won't be managed!*


Governor
Transportation Commission
DOT Director
Public Affairs
Asset Management
General Counsel
Operations and Finance
Planning, Programming,
Motor Vehicle
Information Technology
Highway
Asset Mgmt
Statewide
Engineering
Research and Technology
District 1
Asset Mgmt
Asset Mgmt
Employee Services
Aviation
Driver Services
Enterprise Services
Construction
District 2
Program Management
Motor Carrier Services
OpFin/PPM Support
Contracts
Asset Mgmt
Design
District 3
Asset Mgmt
Legislative Services
Public Transit
Motor Vehicle Enforcement
Motor Vehicle Support
Location and Environment
District 4
Asset Mgmt
Support Services
Rail
Vehicle Services
Highway Support
Maintenance
Right of Way
District 5
Systems Planning
Workstation Support
Materials
Traffic and Safety
District 6
Transportation Data

Understand What You're Asking For

- To fully support TAM implementation, many issues may have to be addressed
  - Does the existing organizational structure support?
  - Who is "responsible" for asset management?
  - Do we have the core competencies required?
- Ultimately, Asset Management touches nearly all business processes in the organization



Other Key Components

- Analytics
  - How can we start turning data into knowledge?
- Communication
  - How do we listen and be heard?
- Continuous Improvement
  - Where do we need to focus to move forward?
- Supportive Organizational Structure
  - How can we live up to expectations?

Bigger than Assets

- Strategic planning
  - What are our goals?
- Performance management
  - Managing non-assets
- Risk management
  - Where do we need to focus?
- Business Intelligence
  - How can we more effectively turn piles of data into actionable information?

Related Key Functions

* With thanks to GDOT for the kernel of this concept

Form Follows Function