

Traffic Monitoring Program Needs and Funding Sources

Highway Information Seminar

Tuesday, November 15, 2011

1:00 p.m. to 2:30 p.m.

Room – Washington #1

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Objective

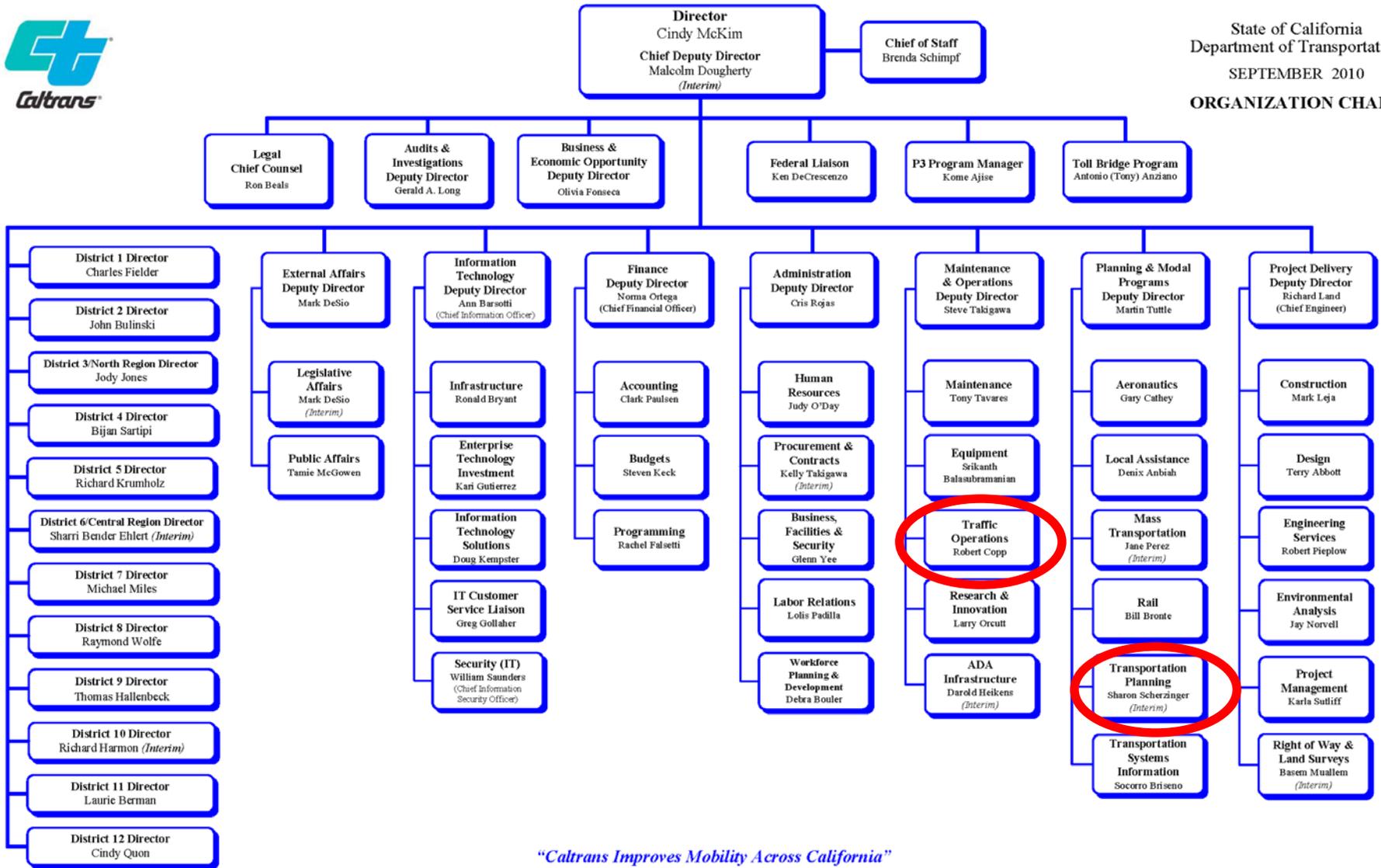
The goal of this session is to familiarize ourselves with all the factors involved in traffic monitoring and help us to think bigger and act faster in order to meet all the challenges we are faced with.

Outline

- Organizational Structure
- Roles We Play
- People, Equipment, Technology ...
- Examples of Traffic Data Usage
- Funding Sources

Organizational Structure

The objective of this part is to help us to understand and know where our profession stands in our organization



"Caltrans Improves Mobility Across California"

Organizational Structure Unit Names

- Intermodal Development
- Pre-construction
- Modal Planning
- Safety and Operations
- Traffic Operations
- Engineering and Operations
- System Operations
- Transport and Mobility
- Operations and Maintenance
-
- Other terms:
 - office, division, team, branch, bureau, unit...

Your Task

- 1: Locate your organizational Structure
- 2: Identify how you are related to your organization
- 3: Identify how your program contribute or is related to other units, divisions, and offices

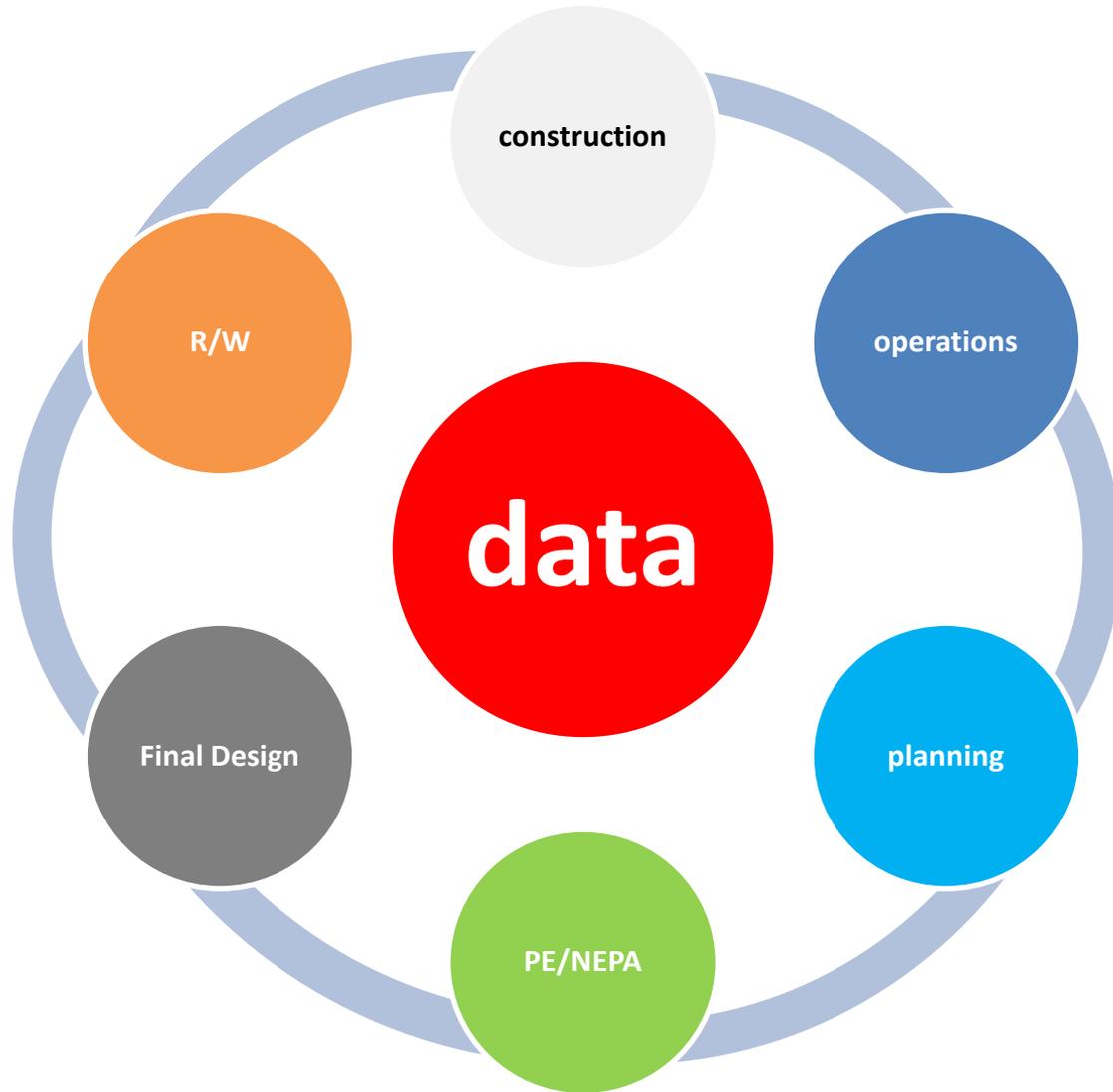
Organizational Structure

Know where you are and how you are related to other offices and divisions from an organization standpoint.

Roles We Play

The objective of this component is to help us to recognize key topics/programs where our data are used for.

Roles We Play



Roles We Play

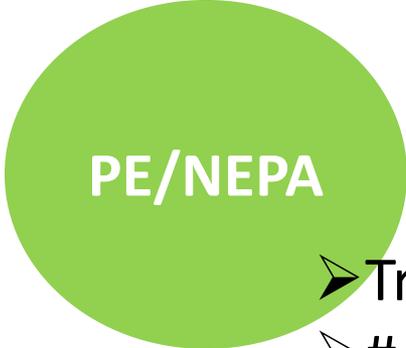


Planning

needs and condition assessments

- Traffic data -- AADTT, AADTT, K, D, F ...
- Transportation improvement Program (TIP) and Statewide Transportation Improvement Program (STIP)
- Travel Demand Modeling – model buildup and calibration
- # of travel lanes needed
- Congestion level – both existing and future conditions
-

Roles We Play

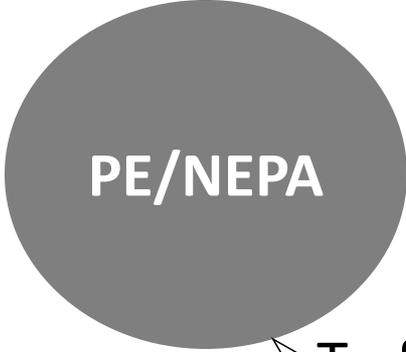


PE/NEPA

Preliminary Engineering and National Environmental Policy Act

- Traffic data -- AADTT, AADTT, K, D, ...
- # of travel lanes needed
- # congestion level – both existing and future conditions
- Pavement design – truck data
- Lane width
- Curvature
- Grade
- highway noise (TNM) - AADTT, peak hour factor, truck data
- Air Quality (MOVES...)
- ...

Roles We Play



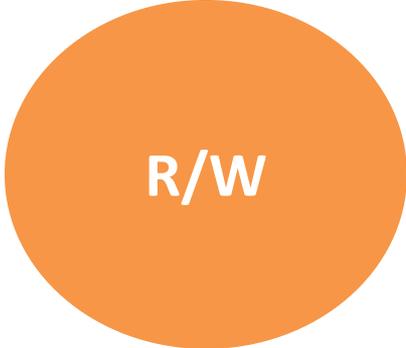
PE/NEPA

Preliminary Engineering and NEPA

- Traffic data -- AADT, AADTT, K, D, ...
- # of travel lanes needed
- congestion level – both existing and future conditions
- pavement design – truck data
- lane width
- Curvature
- grade
-
- project level conformity determination (air quality)
- Final noise wall design and refinement (if applicable)

Roles We Play

Right of Way

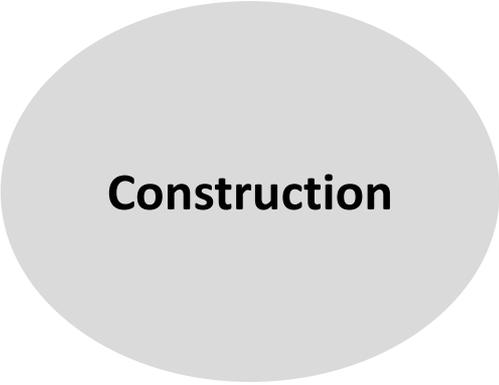


R/W

Project needs and justification from a traffic standpoint in the event of litigation or any court proceeding.

Roles We Play

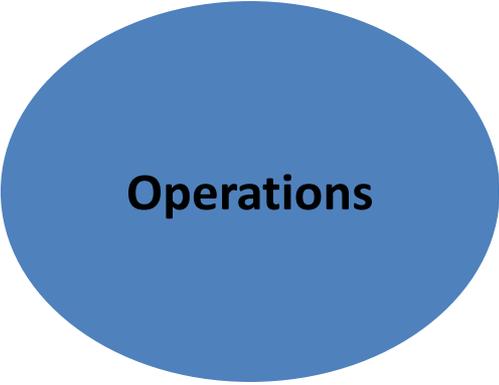
Construction



Construction

Maintaining traffic during construction - one of the most challenging aspect of upgrading existing roadway facilities

Roles We Play

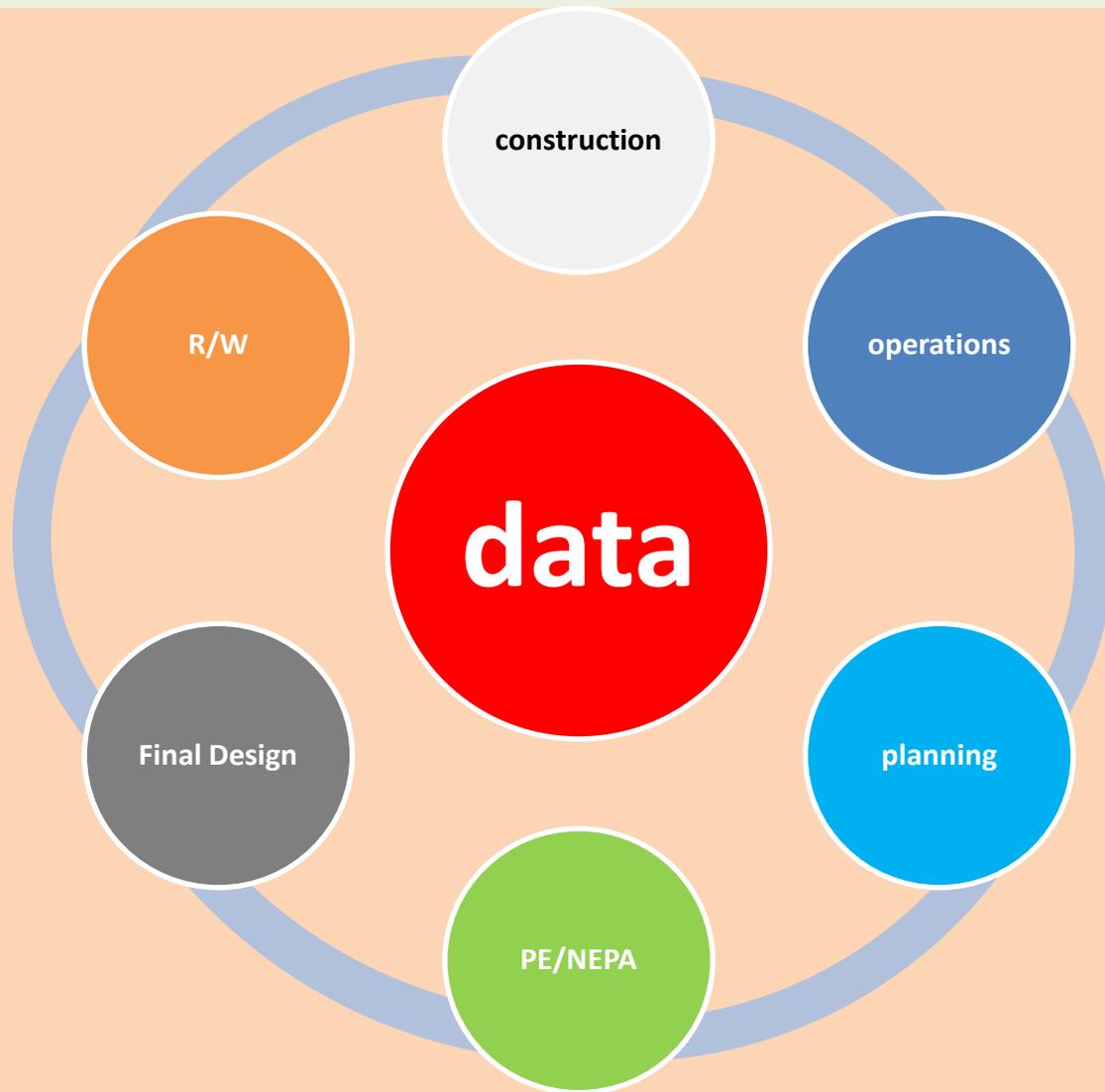


Operations

Operations

- Signal timing, optimization and synchronization
- Turn lane needs assessment – special counts
- Traveler's information system (ITS)
- Safety/Performance - speed
-

Review - Roles We Play



People, Equipment, Technology ...

The objective of this component is to recognize both the human and none human factor issues involved in traffic monitoring.

People and Skill

- Professional engineering (PE) – what is the State regulation? Can none PE approve design traffic studies?
- American Institute of Certified Planners (AICP) - any preference or requirements?
- GIS and other traffic data analysis knowledge
- Software programmer
- Statistics and/or other data analysis experience
- Electricians
- ...

Equipment and Technology

- Roadway facility based technology – both intrusive and none intrusive – loop, camera ...
- Vehicle based technology – GPS, cell phone triangulation ...
- ...

Funding and other Resources

- Doing more and getting more
- Demonstrate value
- ...

People, Equipment, Technology ...

To make our business a successful one, we must know ourselves and our partners and have a good productive relationship with all involved.

Relationship building is just as important as technically know how.

Review -- People, Equipment, Technology ...

- People – Engineer, Planner, Software Programmer, Modelers, Analysts ...
- Equipment – Infrastructure based vs. none-infrastructure based

Traffic Data usage examples

The objective of this component is to recognize some of the key program and products where traffic data are vital to their success.

Traffic Data usage examples

Travel Demand Modeling – Planning Offices and MPOs

Modeling software examples:

Cube, TransCAD, EMME/2

Exactly what type of traffic counting data are used:

Link volume, base year AADT, D, K ...

What the counting data are used for:

Model calibration and validation, Level of Services, facility needs ...

Traffic Data usage examples

Air Quality Analysis – Environmental Offices and MPOs

Modeling software examples:

Mobile6 and MOVES

Exactly what type of traffic counting data are used:

Link volume, vehicle class, speed, turning movements for signalized intersections

What the counting data are used for:

To obtain emission factors for various pollutants (CO, PM, NO_x, VOC ... mg/mile or mg/hour)

Traffic Data usage examples

Highway Noise Analysis – Environmental Offices

Modeling software examples:

TNM (Traffic Noise Model)

Exactly what type of traffic counting data are used:

Link volume, vehicle class – truck , speed, turning movements for signalized intersections

What the counting data are used for:

Calibrate noise model and to predict highway noise level and determine feasibility of noise abatement

Traffic Data usage examples

Roadway Design – Geometric and Pavement Design

Software examples:

Mechanistic Empirical Pavement Design Guide (MEPDG),
Highway Capacity Manual (HCM)

Exactly what type of traffic counting data are used:

volume, class , speed, turning movements for signalized intersections...

What the counting data are used for:

Pavement – layer structure and thickness optimization
Geometric - # o lanes, LOA, grade, Curvature...

Traffic Data- Precision and Accuracy

Ask data users the following question in dealing with traffic counting data precision and accuracy issues

What is the accuracy of your projection data?



+



= 2001.1198798 lbs

Review --Traffic Data usage examples

- People – Engineer, Planner, Software Programmer, Modelers, Analysts ...
- Equipment – Infrastructure based vs. none-infrastructure based

Federal Funding Sources

The objective of this component is to recognize the main Federal-funding categories where traffic data program can take advantage for potential funding sources.

PL and SPR and Funds

- Metropolitan PL fund: 1.25 percent deduction of five federal construction program allocations: (1.) Interstate Maintenance, (2.) National Highway System, (3.) Surface Transportation Program, (4.) Highway Bridge Replacement and Rehabilitation, and (5.) Congestion Mitigation and Air Quality Improvement.
- State Planning and Research Fund: 2% Mandatory Set Aside from six State Apportionments
(IM, NHS, STP, CMAQ, Bridge, HSIP)

Federal Funding Sources

Apportionment Programs

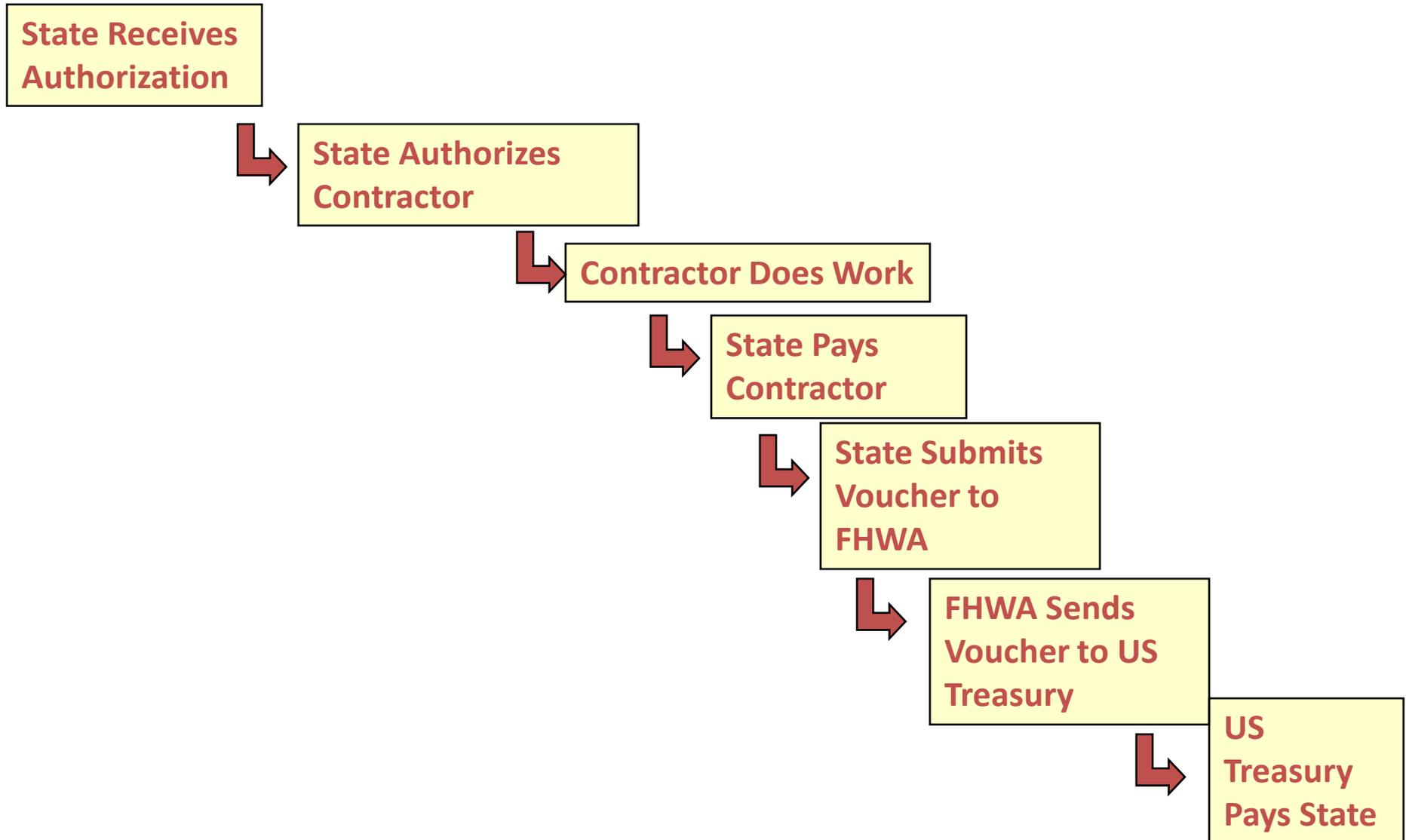
Interstate Maintenance Program
National Highway System
Surface Transportation Program
Highway Bridge Replacement and Rehabilitation Program
Congestion Mitigation and Air Quality Improvement Program
Highway Safety Improvement Program
Railway-Highway Crossings
Safe Routes to School Program
Recreational Trails Program
Coordinated Border Infrastructure Program
Metropolitan Planning

Federal-aid Eligible Roadways

23 CFR 470.103

- means highways on the Federal-aid highway system and all other public roads not classified as local roads or rural minor collectors.”
 - Designated as major collector and above
 - (STPS, STP, NHS, IM)
 - Certain Bridge and Safety projects off system

Federal-aid Is a Reimbursable Program



Review – Federal Funding

PL

SPR

Others

Review

- Organizational Structure
- Roles We Play
- People, Equipment, Technology ...
- Examples of Traffic Data Usage
- Federal Funding

Thank You!

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