

Agenda

Oregon Statewide ITS Architecture and Operational Concept Plan *Architecture Subcommittee Meeting #1*

Friday, January 13, 2006
ODOT Transportation Building
355 Capitol St NE, Salem, OR 97301
5th Floor Conference Room
9:00 – 11:00 a.m.

- | | | |
|------|---|------------|
| I. | Project Overview | 5 Minutes |
| | A. Scope and Schedule | |
| | B. Role of Architecture Subcommittee | |
| II. | Summary of Recent National Architecture Changes | 5 Minutes |
| | A. National ITS Architecture Versions 5.0 and 5.1 | |
| | B. Turbo Architecture Versions 3.0 and 3.1 | |
| III. | Discuss Planned Statewide ITS Projects | 20 Minutes |
| IV. | Review Existing Statewide Architecture and Initial Recommendations
for Updating the Statewide Architecture | 80 Minutes |
| | A. Methodology for Updating the Turbo Architecture Database | |
| | B. Stakeholder List | |
| | C. System Inventory | |
| | D. Market Packages | |
| | E. Architecture Interconnects/Flows | |
| | F. Functional Requirements | |
| | G. ITS Standards | |
| | H. Project Architectures | |
| V. | Operational Concept Overview | 5 Minutes |
| | A. Set up meeting to discuss roles and responsibilities | |
| VI. | Next Steps | 5 Minutes |
| | A. Update Turbo Database and Develop Draft Operational Concept | |
| | B. Schedule Subcommittee Meeting #2: Late February/Early March | |

Meeting Minutes

Oregon Statewide ITS Architecture and Operational Concept Plan *Architecture Committee Meeting #1*

Friday, January 13, 2006
9:00 – 11:00 a.m.

Participants:

<input checked="" type="checkbox"/> Hagedorn, Hau (ODOT)	<input checked="" type="checkbox"/> McGill, Galen (ODOT)
<input checked="" type="checkbox"/> Hoke, Patrick (ODOT)	<input checked="" type="checkbox"/> Peters, Jim (DKS Associates)
<input checked="" type="checkbox"/> Hurtado, Renee (DKS Associates)	<input checked="" type="checkbox"/> Price, Nathaniel (FHWA)
<input checked="" type="checkbox"/> Larsen, Chuck (ODOT)	<input checked="" type="checkbox"/> Spencer, Doug (ODOT)

PROJECT OVERVIEW	ACTION ITEMS
<p>DKS provided an overview of the project and distributed copies of the scope of work and schedule. The role of the Architecture Committee will be to review the project deliverables and provide input.</p> <p>The National Architecture and the Turbo Architecture Software has been updated twice since a major update has been made to the Statewide ITS Architecture. DKS distributed a summary of the changes to the National Architecture and Turbo Architecture.</p>	
PLANNED STATEWIDE ITS PROJECTS	ACTION ITEMS
<p>Chuck provided DKS with an ODOT ITS project list.</p> <p><u>Major current projects:</u></p> <ul style="list-style-type: none"> ▪ TATII (TransPort Advanced Traveler Information Implementation) ▪ TOCS (Transportation Operations Center System) ▪ Regional Trip Planner ▪ TripCheck- cable TV, website changes, PDA links, etc. ▪ CAD Integration- servers are installed, but no systems are hooked up yet ▪ CSEPP (Chemical Stockpile Emergency Preparedness Program) <p><u>Other projects on the horizon:</u></p> <ul style="list-style-type: none"> ▪ NTCIP update for CCTV ▪ Tolling (RUFTE, potential roadway tolling in Dundee/Newberg and Portland-area bridges) ▪ Maintenance management system (asset management/tracking system with flows envisioned to TOCS) 	<p>DKS will follow up with Chuck to find out more details about planned ITS projects.</p>

EXISTING STATEWIDE ITS ARCHITECTURE AND INITIAL RECOMMENDATIONS	ACTION ITEMS
<p>DKS provided stakeholder, system inventory, market package, and information flow reports from the existing Turbo Architecture database and provided a list of initial recommendations. Chuck also provided an updated inventory report.</p>	
<p><u>General</u> The Committee decided on the following general changes:</p> <ul style="list-style-type: none"> ▪ Remove the term “regional” from the architecture name. ▪ Use a 10-year timeframe. ▪ Update the original architecture description. Remove references to internal ODOT departments. Highlight inclusion of regional partners (e.g. local agencies, emergency services, transit agencies, etc.) ▪ The overall intent is to include statewide systems in the Statewide Architecture. Regional stakeholders/elements are included in regional architectures. Generic references will be used in the Statewide Architecture. ▪ Include construction with maintenance operations under the service scope. ▪ Do not include a commercial vehicle operations item under the service scope. ▪ More description will be added to items in the architecture where description or comment fields are available for documentation. ▪ Stakeholders and inventory elements will be updated for current usage and for consistency. 	<p>DKS will update the Turbo Architecture database.</p>
<p><u>Stakeholder List</u> In addition to DKS’s recommendations, the Committee decided on the following changes to the stakeholder list:</p> <ul style="list-style-type: none"> ▪ Delete the “Transit User” stakeholder. This is redundant to the “Travelers” stakeholder. ▪ Delete the “Oregon Department of Environmental Quality” stakeholder. Their ITS involvement is more specific to the Portland and Rogue Valley regions. ▪ Delete the “Fish and Wildlife Agency” stakeholder. ▪ Delete the “Oregon National Guard” stakeholder. ▪ Delete the “Oregon State Parks” stakeholder. ▪ Delete the “United States Coast Guard” stakeholder. ▪ Add a “Traveler Information Council” stakeholder. They are a TripCheck partner and they manage the state welcome centers. ▪ Add a “Mayday Service Providers” stakeholder. ▪ Add a “Commercial Salvage and Towing Operators” stakeholder. ▪ Get input from Rose about whether an “External State Offices of Emergency Management” stakeholder is needed. ▪ Differentiate between 911 centers and emergency operations centers. 	<p>DKS will update the stakeholder list in the Turbo Architecture database based on this input.</p>

<ul style="list-style-type: none"> ▪ Include a “Portland State University” stakeholder. PSU intends for their PORTAL data warehouse to eventually store statewide data. The system will receive TATII data in the near future. 	
<p><u>System Inventory</u> In addition to DKS’s recommendations, the Committee decided on the following changes to the system inventory list:</p> <ul style="list-style-type: none"> ▪ Delete elements that include “personnel” in the name. ▪ Delete the “Frontier Travel Time” inventory element. ▪ Assign the “Law Enforcement Data System” inventory element to the “Oregon Office of Emergency Management” stakeholder. ▪ Replace “ODOT COMET” and “ODOT Freeway Service Patrols” elements with an “ODOT Incident Response Vehicles” element. ▪ Add an “ODOT Maintenance Vehicles” element. ▪ Rename the “TripCheck” inventory element as “TripCheck System”. Revise the description to include 511, HAR, HAT, etc. Delete the other TripCheck and ISP inventory elements. ▪ List ODOT’s regional TOC’s as separate elements. 	<p>DKS will update the system inventory in the Turbo Architecture database based on this input.</p> <p>DKS will coordinate with Galen and Patrick to determine whether to list ODOT’s field devices as one element or to keep them broken out into separate elements.</p>
<p><u>Market Packages</u> Although time did not allow a review of the market packages, the following was noted:</p> <ul style="list-style-type: none"> ▪ Input will be needed from Rose Gentry on the six new emergency management market packages that have been added to the National Architecture. ▪ Some of the advanced vehicle safety systems should be selected as future items. The national Vehicle Infrastructure Integration (VII) initiative will be conducting field trials during 2006 and 2007. A decision on whether to move forward with the VII initiative will likely occur in 2008 and this may be included in the next reauthorization. ▪ Market packages should be selected to support AVL data from ODOT vehicles as well as private probe data. 	<p>DKS will update the market packages in the Turbo Architecture database based on this input.</p>
<p><u>Information Flows</u> The information flows will be updated after the Committee has had a chance to review the proposed changes to the stakeholder list, system inventory, and market packages.</p>	<p>DKS will update the flows in Turbo Architecture once the Committee has reviewed the stakeholders, system inventory, and market packages.</p>
NEXT MEETINGS	
<p><u>Operational Concept Meeting</u></p> <ul style="list-style-type: none"> ▪ Early February (Date/time TBD) ▪ Agenda: Set framework for stakeholders’ roles and responsibilities as part of the operational concept. 	<p><u>Committee Meeting #2</u></p> <ul style="list-style-type: none"> ▪ Late February/Early March (Date/time TBD) ▪ Agenda: Review updated Turbo Architecture database, operational concept and functional requirements

Agenda

Oregon Statewide ITS Architecture and Operational Concept Plan *Architecture Committee Meeting*

Thursday, February 16, 2006
ODOT Transportation Building
355 Capitol St NE, Salem, OR 97301
5th Floor Conference Room
1:00 – 3:00 p.m.

- I. Scope of Operational Concept 10 Minutes
 - A. FHWA Objectives:
 - i. Identify current and future stakeholder roles and responsibilities in the implementation and operation of regional systems.
 - ii. Achieve buy-in on these roles/responsibilities, laying groundwork for future agency agreements.
 - B. Operational Concept Report Content

- II. Review Operational Concepts by Transportation Service Area 105 Minutes
 - A. Regional Traffic Control
 - B. Transportation Operations Centers
 - C. Maintenance and Construction Operations
 - D. Winter Operations
 - E. Device Management
 - F. Incident Management
 - G. Emergency Management
 - H. Traveler Information
 - I. Archived Data

- III. Next Steps 5 Minutes
 - A. Draft Operational Concept Documentation: March 3
 - B. Committee Meeting: March 9, 1:00 – 3:00 pm

Meeting Minutes

Oregon Statewide ITS Architecture and Operational Concept Plan *Architecture Committee Meeting*

Thursday, February 16, 2006
1:00 – 3:00 p.m.

Participants:

<input checked="" type="checkbox"/> Hagedorn, Hau (ODOT)	<input checked="" type="checkbox"/> Peters, Jim (DKS Associates)
<input checked="" type="checkbox"/> Hoke, Patrick (ODOT)	<input checked="" type="checkbox"/> Price, Nathaniel (FHWA)
<input checked="" type="checkbox"/> Hurtado, Renee (DKS Associates)	<input checked="" type="checkbox"/> Spencer, Doug (ODOT)
<input checked="" type="checkbox"/> McGill, Galen (ODOT)	

SCOPE OF OPERATIONAL CONCEPT	ACTION ITEMS
<p>DKS discussed FHWA's objectives for an operational concept and discussed their proposed report format. Each service area will include a description, a discussion of current and future applications, and a roles and responsibilities table.</p>	<p>DKS will distribute a Draft Operational Concept prior to the next Committee meeting.</p>
<p>Galen wants to make sure the Operational Concept captures how strategies and projects relate to stakeholders statewide. For example:</p> <ul style="list-style-type: none"> ▪ Data sharing with regional partners, ISP's, OSP, 911 centers, etc. ▪ Message exchange brokerages provide hub-type connectivity instead of a one-to-one connection between each center. ▪ The TripCheck Travel Information Portal (TTIP) will be the centralized traveler information collection and dissemination exchange. 	
<p>DKS provided a handout that included a draft description and roles and responsibilities table for each operational concept service area.</p>	
REGIONAL TRAFFIC CONTROL OP. CONCEPT	ACTION ITEMS
<p>Future of Regional Traffic Control:</p> <ul style="list-style-type: none"> ▪ More real-time data accessibility, especially from traffic signals. This will include accessibility between agencies. ▪ Traffic signal connectivity and shared control. ▪ Connect to signal systems through TOCS to implement incident signal timing plans. This will enable more functionality (e.g. emergency routing, adaptive technologies). ▪ Permanent variable speed limit signs (e.g. for use on the passes during inclement weather). ▪ Ramp closure/gate systems. ▪ Ramp meters in additional urban areas. 	<p>DKS will incorporate the Committee's input into the Draft Operational Concept.</p>

<p>Comments on Roles and Responsibilities:</p> <ul style="list-style-type: none"> ▪ Add “Implement and operate central traffic signal system.” to ODOT. This will apply in the Bend region. Local agencies will be responsible for signal systems in other regions. 	
TOC’S OPERATIONAL CONCEPT	ACTION ITEMS
<p>Comments on TOC Hours of Operation and Regional Responsibility:</p> <ul style="list-style-type: none"> ▪ Region 2 NWTOC, not Region 3 TOC, is responsible for Regions 4 and 5 after hours during the summer. ▪ Region 3 TOC is also responsible for District 11 (Klamath Falls). ▪ Region 4 TOC operates 7 days a week during summer operations. The start and end dates of summer operations vary each year. ▪ Region 4 TOC provides back-up for Region 2 TOC, not Region 3 TOC. ▪ Although Region 5 does not have an existing or planned formal TOC the Region 5 District Offices essentially operate as a TOC during regular business hours. The main difference is that Region 5 is unable to dispatch for incident management and does not have access to LEDS. They will have TOCS when it is implemented. Add Region 5 as a TOC with limited capability. 	<p>DKS will incorporate the Committee’s input into the Draft Operational Concept.</p>
<p>Comments on Roles and Responsibilities:</p> <ul style="list-style-type: none"> ▪ Except for managing ramp meters (SWARM in Region 1, future ramp meters in Region 2), all of the ODOT TOC’s perform the same functions and will have the same functionality with TOCS. This includes implementing coordinated traffic signal timings in the future using TOCS. ▪ Dispatching ODOT maintenance crews is broader than just an incident management function. ▪ Add interfaces from ODOT TOC’s to other TOC’s (local and other states). ▪ ODOT and Caltrans jointly manage the Siskiyou Pass. ▪ Add the following stakeholders: <ul style="list-style-type: none"> Local Traffic Management External State Departments of Transportation 	
FREEWAY MANAGEMENT OPERATIONAL CONCEPT	ACTION ITEMS
<p>The Committee agreed to delete this service area since it fits under the Regional Traffic Control Operational Concept.</p>	<p>DKS will delete this service area.</p>
MAINTENANCE & CONSTRUCTION OP. CONCEPT	ACTION ITEMS
<p>Comments on Roles and Responsibilities:</p> <ul style="list-style-type: none"> ▪ Move the roles and responsibilities related to weather/pavement monitoring and weather information to the Road Weather Operational Concept. ▪ The role of monitoring travel times through work zones and providing the information to the public should possibly be assigned to ODOT Motor Carrier instead of ODOT. 	<p>DKS will incorporate the Committee’s input into the Draft Operational Concept.</p>

<ul style="list-style-type: none"> ▪ Add the following stakeholders: External State Departments of Transportation Utilities 	
WINTER OPERATIONS OPERATIONAL CONCEPT	ACTION ITEMS
<p>The Committee agreed to rename this service area as Road Weather Operational Concept to be more consistent with the National ITS Architecture terminology.</p>	<p>DKS will incorporate the Committee's input into the Draft Operational Concept.</p>
<p>Comments on Roles and Responsibilities:</p> <ul style="list-style-type: none"> ▪ Add Utilities to the stakeholder list. 	
DEVICE MANAGEMENT OPERATIONAL CONCEPT	ACTION ITEMS
<p>The Committee agreed to delete this service area since this is typically addressed at the project level.</p>	<p>DKS will delete this service area.</p>
INCIDENT MANAGEMENT OPERATIONAL CONCEPT	ACTION ITEMS
<p>Highlight in the description that this operational concept applies to day-to-day incidents on roadways.</p>	<p>DKS will incorporate the Committee's input into the Draft Operational Concept.</p>
<p>Future of Incident Management:</p> <ul style="list-style-type: none"> ▪ The PDCC Message Broker will be the statewide model for integration/interaction between traffic/transit management and emergency management centers. ▪ More data will be shared between centers. 	
<p>Comments on Roles and Responsibilities:</p> <ul style="list-style-type: none"> ▪ Assume that OBDP fits under ODOT. They use a number of construction and maintenance applications. ▪ Add the following stakeholders: External State Departments of Transportation Commercial HazMat Clean-Up Operators ▪ Keep the media under the Traveler Information Operational Concept. 	
EMERGENCY MANAGEMENT OP. CONCEPT	ACTION ITEMS
<p>Future of Emergency Management:</p> <ul style="list-style-type: none"> ▪ Share data between TOC's and EOC's. ▪ OEM is working on software for their emergency centers. This could be expanded to interface with other agencies. 	<p>DKS will incorporate the Committee's input into the Draft Operational Concept.</p>
<p>Comments on Roles and Responsibilities:</p> <ul style="list-style-type: none"> ▪ Refer to the ODOT <i>Emergency Operations Plan</i> for detailed roles and responsibilities. Acknowledge the high-level function only in this Operational Concept. ▪ Add the following stakeholders: Federal Land Agencies External State Departments of Transportation External State Offices of Emergency Management 	

TRAVELER INFORMATION OPERATIONAL CONCEPT	ACTION ITEMS
<p>Existing Traveler Information:</p> <ul style="list-style-type: none"> ▪ TripCheck is an all-inclusive “branded” system (e.g. website, 511, cable TV, kiosks at rest areas, message broker, HAR). 	<p>DKS will incorporate the Committee’s input into the Draft Operational Concept.</p>
<p>Future of Traveler Information:</p> <ul style="list-style-type: none"> ▪ The Regional Trip Planner will be a component of TripCheck when the project is finished. ▪ The TripCheck Travel Information Portal (TTIP) will be the centralized traveler information collection/dissemination exchange. ▪ Commercial ISP’s will be able to tailor their information based on the information they pull off TTIP. ▪ ODOT will be able to tailor information provided to in-vehicle devices. 	
<p>Comments on Roles and Responsibilities:</p> <ul style="list-style-type: none"> ▪ Where do amber alerts and CSEP alerts fit in? WCCA issues amber alerts and TOC operators post the information (e.g. DMS, HAR). ▪ Add the following stakeholders: <ul style="list-style-type: none"> ○ Oregon Travel Information Council (OTIC) ○ External State Departments of Transportation ○ Media ○ Commercial Information Service Providers ▪ OTIC owns, operates, and maintains kiosks at Welcome Centers. 	
ARCHIVED DATA OPERATIONAL CONCEPT	ACTION ITEMS
<p>Future of Archived Data:</p> <ul style="list-style-type: none"> ▪ One option is to expand PSU’s PORTAL to include statewide archived data. PSU currently envisions PORTAL as a Portland area data warehouse. If PORTAL is not expanded statewide then a similar system may need to be deployed. 	<p>DKS will incorporate the Committee’s input into the Draft Operational Concept.</p>
<p>Comments on Roles and Responsibilities:</p> <ul style="list-style-type: none"> ▪ ODOT archives various types of information through their numerous systems (e.g. TOCS, ATMS, HTRCS, DMS, RWIS). ODOT protects some data (e.g. LEDS) for security reasons. ▪ Most agencies (including ODOT) currently archive or plan to archive their own data and will share pertinent information (e.g. detector loop data, weather data, etc.) through a data warehouse. ▪ Add NOAA as a stakeholder. 	
NEXT MEETING	
<ul style="list-style-type: none"> ▪ March 22: 10 am – 12 pm [Originally scheduled for March 9: 1 – 3 pm] ▪ Agenda: Review updated Turbo Architecture database, operational concept, and functional requirements 	

Agenda

Oregon Statewide ITS Architecture and Operational Concept Plan *Architecture Committee Meeting*

Wednesday, March 22, 2006
ODOT Transportation Building
355 Capitol St NE, Salem, OR 97301
Conference Room 119
10:00 a.m. – 12:00 p.m.

- | | | |
|------|--|------------|
| I. | Operational Concept | 40 Minutes |
| | A. Present Draft Report | |
| | B. Discuss Comments | |
| II. | Turbo Database | 25 Minutes |
| | A. Present Turbo Reports and Change Logs | |
| | B. Discuss Comments | |
| III. | Functional Requirements | 45 Minutes |
| | A. Draft Functional Requirements Report | |
| IV. | Next Steps | 5 Minutes |
| | A. Project Deliverables: | |
| | i. Draft and Final Operational Concept | |
| | ii. Draft Architecture Summary Document, which will include a section on ITS projects and sequencing | |
| | B. Final Steering Committee Meeting: Mid-April | |

Meeting Minutes

Oregon Statewide ITS Architecture and Operational Concept Plan *Architecture Committee Meeting*

**Wednesday, March 22, 2006
10 a.m. – 12 p.m.**

Participants:

<input checked="" type="checkbox"/> Hagedorn, Hau (ODOT)	<input checked="" type="checkbox"/> McGill, Galen (ODOT)
<input checked="" type="checkbox"/> Hoke, Patrick (ODOT)	<input checked="" type="checkbox"/> Peters, Jim (DKS Associates)
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<input checked="" type="checkbox"/> Larsen, Chuck (ODOT)	

OPERATIONAL CONCEPT	ACTION ITEMS
<p>DKS provided a draft copy of the Oregon Statewide Operational Concept Plan. The Committee agreed that the general structure works well and that fine tuning should be made to each service area.</p>	<p>DKS will incorporate comments from the meeting and send out an updated Operational Concept document for the Committee to review.</p>
<p><u>Operational Concept Graphics</u></p> <ul style="list-style-type: none"> ▪ DKS provided a sketch of a draft Traveler Information Operational Concept graphic. ▪ The Committee would like the document to include a graphic for each operational concept service area where needed. ▪ After some discussion, it was decided DKS will develop a core Visio diagram that shows the main architecture components and then tailor the diagram for each service area to show the applicable information flows. 	<p>Patrick will provide DKS with Visio files of existing ODOT architecture graphics as a starting point for the Operational Concept graphics.</p>
REGIONAL TRAFFIC CONTROL OP. CONCEPT	ACTION ITEMS
<p><u>Committee Input on Vision and Goals</u></p> <ul style="list-style-type: none"> ▪ Regional approach using partnerships is key (e.g. ODOT-WSDOT sharing of ATMS software and response). ▪ Expand bullet item that reads, “Automate traffic signal control and freeway control responses.” ▪ Establish a corridor approach to integrating freeway and arterial management systems. ▪ Develop network-based communications to traffic signals to enable more real-time monitoring of signal data. This will allow timing adjustments and better incident detection. ▪ Automate information flows to inform other agencies when special signal timing plans are implemented. 	<p>DKS will incorporate these comments in the Operational Concept.</p>

<p><u>Committee Input on Applications</u></p> <ul style="list-style-type: none"> ▪ Add text on vehicle infrastructure integration (VII)/in-vehicle technology such as radar systems, adaptive cruise control, sending location information to ODOT. 	
<p>TOC'S OPERATIONAL CONCEPT</p>	<p>ACTION ITEMS</p>
<p><u>Committee Description of ODOT's TOCS Project</u></p> <ul style="list-style-type: none"> ▪ Common, statewide integrated, automated system. ▪ Enable event management capabilities. An "event" is any non-standard occurrence and includes incidents, special events, maintenance and construction activities, etc. ▪ Serve a coordinating role to support entire operations and maintenance activities within ODOT. ▪ Integrate event management (e.g. dispatch functions) with traffic management, which includes integrating response management with device control. ▪ Coordinate responses across TOC boundaries. ▪ Integrate with OSP systems and operations. ▪ Collect and disseminate information through a central information broker to travelers, area managers, and decision makers. The information needs to get from the TOC to decision makers at EOC's, District Offices, Headquarters, personnel in the field, etc. ▪ Electronic data exchange between systems (e.g. 911 centers, other traffic management agencies) ▪ Provide autonomous operation so that operations may continue locally in the event of a central server outage. ▪ Better communications audit method to track responses for historical archiving purposes. It is currently hard to track activities conducted over the telephone. ▪ Management reporting capabilities for metrics, performance measures, etc. ▪ Implement ITS standards (e.g. incident management sets). ▪ Standardize operational procedures. 	<p>DKS will use the same descriptions from the TOCS documentation in the Operational Concept.</p> <p>DKS will include the TOCS diagram in the report.</p>
<p>TRAVELER INFORMATION OPERATIONAL CONCEPT</p>	<p>ACTION ITEMS</p>
<p><u>Committee Input on Vision and Goals</u></p> <ul style="list-style-type: none"> ▪ Tie together bullet items about marketing the TripCheck brand and disseminating information. ▪ Expand the bullet on providing information to subscribers by adding that the service is free of charge and non-exclusive. ▪ The main vision is to provide accurate, timely information to travelers at opportune times using multiple formats so they can make informed decisions. ▪ Need to customize data for each traveler instead of just providing vast amounts of information. Travelers need data that is useful to them to support their travel decisions. ▪ The future vision includes more customizable systems that will provide applicable information based on a traveler's location. ▪ Improve the reach and quality of traveler information with more types of information, more sources, and more coverage. 	<p>DKS will incorporate these comments in the Operational Concept.</p>

<ul style="list-style-type: none"> ▪ Travelers need more information about the service response impacts. For example, they want to know how long it will take them to get to their final destination on the route they are currently on versus taking an alternate route. ▪ Work with neighboring states (e.g. CalTrans, WSDOT, ITD) to post information on DMS's. 	
MAINTENANCE & CONSTRUCTION OP. CONCEPT	ACTION ITEMS
<u>Committee Input on Vision and Goals</u> <ul style="list-style-type: none"> ▪ Vision and goals overlap with the TOCS project. ▪ In the second bullet replace “manage and schedule” with “report”. ▪ How much asset responsibility (e.g. culverts, static signs) are the responsibility of ITS? ▪ Monitor delay in work zones. ▪ Automate maintenance and construction monitoring to improve efficiency. ▪ Use efficient tools such as remote activation of a sign instead of sending a maintenance crew to manually rotate a sign. 	<p>DKS will incorporate these comments in the Operational Concept.</p> <p>DKS will contact Anne Holder to get Oregon work zone crash data.</p>
ROAD WEATHER OPERATIONAL CONCEPT	ACTION ITEMS
<u>Committee Input on Vision and Goals</u> <ul style="list-style-type: none"> ▪ Improve weather tools to aid in decision making. ▪ Automate the posting of weather information. ▪ Need route/pavement forecasts in addition to general information (e.g. snow expected in a region). ▪ Many commercially available AVL systems have a weather component that provides weather information in-vehicle. In the future these systems may act as probes to provide more complete weather coverage. 	<p>DKS will incorporate these comments in the Operational Concept.</p>
<u>Committee Input on Issues</u> <ul style="list-style-type: none"> ▪ Reliable technology has not yet been developed for automated roadway treatment on the state highway system. ▪ ODOT IT issue needs to be resolved so that maintenance crews may access weather data securely over the Internet from their homes. 	
<u>Committee Input on Applications</u> <ul style="list-style-type: none"> ▪ Automated Roadway Treatment: ODOT also has a heating system on the zoo bridge and a spray system on US 26. ▪ Maintenance Kiosks: 40 have already been deployed. ▪ RWIS Notification System: A pilot has been under testing the past two months. ▪ Flood/Slide Warning Systems: The system on US 101 near Seaside has been installed and is operational. ▪ The applications of tomorrow section may need to be more generic and discuss the types of desired applications that will meet the state's needs. 	

INCIDENT MANAGEMENT OPERATIONAL CONCEPT	ACTION ITEMS
<u>Committee Input on Vision and Goals</u> <ul style="list-style-type: none"> ▪ Vision and goals overlap with the TOCS project. ▪ Need tools for pre-planning incident response and activating response plans. ▪ Tie device control to response. ▪ Quick clearance is important. ▪ Collect better location information to enable a faster response. 	DKS will incorporate these comments in the Operational Concept.
<u>Committee Input on Issues</u> <ul style="list-style-type: none"> ▪ Expand the list of issues, but only include the ones that ODOT can impact. 	
<u>Committee Input on Applications</u> <ul style="list-style-type: none"> ▪ TOCS will include a simulation for conducting drills. ▪ TOCS response function will include an alternate route planning tool for planning what responses need to occur based on incident locations and severity. ▪ Mayday Project: ODOT will have a concept of operations for this project ready in the near future. 	
EMERGENCY MANAGEMENT OP. CONCEPT	ACTION ITEMS
<u>Committee Input on Vision and Goals</u> <ul style="list-style-type: none"> ▪ Improve information sharing between agencies. ▪ Get information to decision makers in the EOC's. 	DKS will incorporate these comments in the Operational Concept.
ARCHIVED DATA OPERATIONAL CONCEPT	ACTION ITEMS
<u>Committee Input on Vision and Goals</u> <ul style="list-style-type: none"> ▪ Share data for planning purposes. ▪ Develop analysis tools for performance measure assessment, asset management, financial decision making, etc. ▪ Automate system performance monitoring. ▪ Develop predictive algorithm applications. ▪ Determine how the public will access archived data. Will this be a part of PORTAL or through a separate website where they can run their own reports. 	DKS will incorporate these comments in the Operational Concept.
TURBO ARCHITECTURE DATABASE	ACTION ITEMS
DKS provided an updated copy of the Turbo Reports and Change Logs for the architecture attributes, stakeholders, inventory elements, and market packages. Minor changes were made since DKS originally e-mailed these out.	Committee will review the Turbo reports and change logs. Upon review completion DKS will customize the architecture flows in Turbo.
FUNCTIONAL REQUIREMENTS	ACTION ITEMS
The Committee decided not to select functional requirements for the statewide architecture. They are most beneficial on a project level. They also do not help tailor the information flow selection process.	Functional requirements will not be added to the Turbo database.

PROJECT SEQUENCING	ACTION ITEMS
<p><u>Committee's Expectations of the Project Sequencing</u></p> <ul style="list-style-type: none"> ▪ This will be a strategic outline for implementing the architecture. ▪ The sequence is more important than the actual schedule. ▪ Include projects underway or already planned (e.g. TOCS, Regional Trip Planner). ▪ Include planned projects and new initiatives that are needed to achieve the architecture's vision (e.g. PDCC expansion, PORTAL expansion, TripCheck expansion, TTIP expansion, incident operations management system, ATC spec, VII). 	<p>DKS will draft the project sequencing prior to the next meeting and will work with Chuck to get more information on the projects ODOT already has planned.</p>
<p>Chuck is in the process of updating ODOT's resource management plan.</p>	
NEXT MEETING	
<ul style="list-style-type: none"> ▪ Late April: Time and date to be determined ▪ Agenda: Discuss project sequencing 	

Agenda

Oregon Statewide ITS Architecture and Operational Concept Plan *Architecture Committee Meeting*

Tuesday, May 2, 2006
ODOT Transportation Building
355 Capitol St NE, Salem, OR 97301
Conference Room 119
9:00 – 11:00 a.m.

- | | | |
|------|---|------------|
| I. | Turbo Database | 10 Minutes |
| | A. Discuss comments | |
| II. | Operational Concept | 10 Minutes |
| | A. Discuss comments | |
| III. | Project Sequencing | 80 Minutes |
| | A. Finalize active and planned project list | |
| | B. Edit draft project sequencing list | |
| | C. Prioritize project sequencing | |
| IV. | Summary Document | 5 Minutes |
| | A. Present format | |
| V. | Next Steps | 5 Minutes |
| | A. Final Committee Meeting: | |
| | i. ITS Standards | |
| | ii. Maintenance Plan | |
| | iii. Review FHWA Checklist | |

Meeting Minutes

Oregon Statewide ITS Architecture and Operational Concept Plan *Architecture Committee Meeting*

**Tuesday, May 2, 2006
9 – 11 a.m.**

Participants:

<input checked="" type="checkbox"/> Hagedorn, Hau (ODOT)	<input checked="" type="checkbox"/> McGill, Galen (ODOT)
<input checked="" type="checkbox"/> Hoke, Patrick (ODOT)	<input checked="" type="checkbox"/> Peters, Jim (DKS Associates)
<input checked="" type="checkbox"/> Hurtado, Renee (DKS Associates)	<input checked="" type="checkbox"/> Price, Nathaniel (FHWA)
<input checked="" type="checkbox"/> Larsen, Chuck (ODOT)	<input checked="" type="checkbox"/> Spencer, Doug (ODOT)

TURBO DATABASE COMMENTS	ACTION ITEMS
<p><u>Project Architectures</u></p> <ul style="list-style-type: none"> ▪ Include the following project architectures: <ol style="list-style-type: none"> 1) TOCS (already in Turbo) 2) TripCheck System 3) TTIP (already in Turbo) 4) Road Weather Operations ▪ Delete the Regional Trip Planner project architecture. Components of this project fall under the TripCheck System. 	<p>DKS will incorporate the comments in the Turbo Architecture database.</p> <p>Chuck will follow up with DKS about whether to include tolling in the architecture.</p>
<p><u>System Inventory</u></p> <ul style="list-style-type: none"> ▪ Delete the ODOT HazMat Response Vehicles element. Incident response vehicles are also used for HazMat response. 	
<p><u>Market Packages</u></p> <ul style="list-style-type: none"> ▪ ATMS10- Electronic Toll Collection: May want to change this to not planned. Although tolling will likely happen, it is uncertain if ODOT will own any tolling facilities and whether or not there will be any data flows from tolling facilities. Chuck will investigate this issue. ▪ ATMS15- Railroad Coordination: Change the status from not planned to future and include associated future flows. ▪ ATMS21- Roadway Closure Management: Remote-controlled gates are used as part of CSEPP. These are operated by a local agency (most likely Morrow County). ▪ ATIS7- Yellow Pages and Reservation: This market package is utilized by TripCheck. Oregon TIC does not have any other involvement in this other than through TripCheck. ▪ EM03- Mayday and Alarms Support: It is not yet known how mayday messages will be transmitted to ODOT. Do not include the PDCC CAD message broker as an associated element since it is still being determined if this will be used to support this market package. 	

<ul style="list-style-type: none"> ▪ EM06- Wide Area Alert: Change the status from not planned to existing since this applies to amber alerts. ▪ EM07- Early Warning System: Keep status as not planned. 	
OPERATIONAL CONCEPT COMMENTS	ACTION ITEMS
<p><u>Regional Traffic Control</u></p> <ul style="list-style-type: none"> ▪ Transit signal priority will not be described in the operational concept since it is covered in regional plans. ▪ The potential benefits of VII need to be better described to show the future impacts to traffic management and traveler information. These include reductions in roadway departure accidents, reductions in red-light running, weather probe data, in-vehicle signing applications, etc. Need to sell VII to stakeholders who are less familiar with ITS. ▪ Add more emphasis on ATC specifications and the benefits of using national standards. 	<p>DKS will incorporate the comments in the Operational Concept.</p> <p>Patrick will review Adam's mark-up of the Road Weather Operations figure and forward comments to DKS.</p>
<p><u>Traveler Information</u></p> <ul style="list-style-type: none"> ▪ The Regional Trip Planner project will replace the "Bus/Train/Air" tab on the TripCheck Web site with a "Transportation Options" tab and sub-tabs for various transportation modes. 	
<p><u>Maintenance and Construction Operations</u></p> <ul style="list-style-type: none"> ▪ Reorganize goals to lead with the strong ones. ▪ Camera phones are being used by ODOT crews for incident response. They are not currently using them for maintenance activities. ▪ A maintenance and construction activity coordination database will interface with TTIP, but each agency will have to install the HTCRS system on their end. Identify the status of this as planned. 	
<p><u>Road Weather Operations</u></p> <ul style="list-style-type: none"> ▪ Do not need to clarify between RWIS and ESS. Continue to use RWIS terminology. ▪ SCAN Web is licensed through SSI. Rename the application as RWIS Web Database or Interface. ▪ Discuss future applications of VII, MDSS, and Clarus, but do not include private vendor stakeholders in the roles and responsibilities table. 	
<p><u>Incident Management</u></p> <ul style="list-style-type: none"> ▪ Add more description about the role of the Oregon State Police. For example, OSP and ODOT are partners, they are co-located in some locations, they coordinate responses, and they will exchange data directly through the PDCC CAD message broker. 	
<p><u>Operational Concept Figures</u></p> <ul style="list-style-type: none"> ▪ Only show a subsystem on a figure if there are links. ▪ Adam has some mark-ups of the Road Weather Operations figure that Patrick will review. ▪ Add ODOT's RWIS ftp site to the Archived Data Management figure. This is a service of TripCheck that terminates to the public. 	

PROJECT SEQUENCING	ACTION ITEMS
<ul style="list-style-type: none"> ▪ After a discussion of various format options, the Committee agreed that the best option is to put the projects in an Excel spreadsheet matrix that includes, at a minimum: project title, high-level description, and applicable service areas. A column for project dependencies may need to be added. ▪ The matrix should include the project list that Chuck is currently developing for the 2007 to 2009 biennium. ▪ The matrix will be included in a project sequencing chapter of the summary document. 	<p>DKS will format the project sequencing matrix and include a preliminary list of projects.</p> <p>Galen and Chuck will edit the project sequencing matrix.</p>
MAINTENANCE PLAN	ACTION ITEMS
<ul style="list-style-type: none"> ▪ Who will perform maintenance? ODOT ITS Unit (Patrick!) ▪ What will be maintained? Project architectures, stakeholders, inventory, market packages, interconnects and flows, operational concept, ITS standards, and project sequencing. ▪ How often? On an as-needed basis for major projects and on a planned basis every two years (in odd-numbered years) closely following the biennium financial planning. ▪ Process? Patrick will make changes and log them. He will distribute change log to the ITS Unit for review and a meeting will be held if necessary for project updates. An “architecture summit” meeting will be held to review each biennium update. 	<p>DKS will incorporate the maintenance plan input in the summary document.</p>
LAST MEETING	
<ul style="list-style-type: none"> ▪ June 1, 2006: 2 – 4 PM (ODOT “T” Building, Salem) ▪ Agenda: <ul style="list-style-type: none"> ITS Summary Document Finalize Project Sequencing ITS Standards Review FHWA Checklist 	

Agenda

Oregon Statewide ITS Architecture and Operational Concept Plan *Architecture Committee Meeting*

Thursday, June 1, 2006
ODOT Transportation Building
355 Capitol St NE, Salem, OR 97301
5th Floor Conference Room
2:00 – 4:00 p.m.

- | | | |
|------|---|------------|
| I. | Summary Document | 20 Minutes |
| | A. Discuss comments | |
| | B. Present remaining sections that require review | |
| II. | Project Sequencing | 60 Minutes |
| | A. Finalize project list | |
| | B. Prioritize projects by biennium | |
| III. | FHWA Regional ITS Architecture Assessment Checklist | 25 Minutes |
| | A. Current Review | |
| IV. | Next Steps | 5 Minutes |
| | A. Final Review by Committee | |
| | i. Comments on Summary Document due by Friday, June 9 | |
| | ii. All other comments due by Tuesday, June 20 | |
| | B. Final Turbo Architecture Database and Summary Document | |
| | i. Contract ends Friday, June 30 | |

Meeting Minutes

Oregon Statewide ITS Architecture and Operational Concept Plan *Architecture Committee Meeting*

**Thursday, June 1, 2006
2 – 4 p.m.**

Participants:

<input checked="" type="checkbox"/> Fijol, Robert (FHWA)	<input checked="" type="checkbox"/> McGill, Galen (ODOT)
<input checked="" type="checkbox"/> Hagedorn, Hau (ODOT)	<input checked="" type="checkbox"/> Peters, Jim (DKS Associates)
<input checked="" type="checkbox"/> Hoke, Patrick (ODOT)	<input checked="" type="checkbox"/> Price, Nathaniel (FHWA)
<input checked="" type="checkbox"/> Hurtado, Renee (DKS Associates)	<input checked="" type="checkbox"/> Spencer, Doug (ODOT)
<input checked="" type="checkbox"/> Larsen, Chuck (ODOT)	

SUMMARY DOCUMENT COMMENTS	ACTION ITEMS
<ul style="list-style-type: none"> ▪ The audience of the summary document includes people who are not familiar with ITS. There should be more information up front before getting into the details about the National ITS Architecture. Add more information about what an ITS architecture is, why it is important, and how it is used. Describe ODOT's systems engineering approach. ▪ Add discussion on the relationship between the statewide architecture and the regional architectures. ▪ Add text in the functional requirements section about how the functional requirements are addressed as part of the systems engineering process for each project. 	<p>The Committee will finish reviewing the draft Summary Document.</p> <p>DKS will incorporate the comments into the Summary Document.</p>
ARCHITECTURE FLOWS	ACTION ITEMS
<p>DKS went through a list of questions they needed answered in order to finish the architecture flows. The discussion included the following:</p> <ul style="list-style-type: none"> ▪ Most of the interaction with external state TOCs is manual. Region 1 coordinates with WSDOT, Region 3 coordinates with Caltrans, and Regions 4 and 5 coordinate with ITD. ▪ Assume that camera control will still continue to be shared from center to center in the future and will not be filtered through TTIP. ▪ Emergency management centers (e.g. 911 centers, EOCs) may possibly be able to remotely control (pan/tilt/zoom) ODOT's cameras in the future. ▪ Assume probe data will be sent through an ISP prior to making it to ODOT. ▪ Do not assign any flows to tolling, but keep it selected as a future market package. 	<p>DKS will send out the draft architecture flows, in PDF format grouped by market package, for the Committee to review.</p>

<p>DKS noted that they have a call in to Iteris to find out if it is possible to assign custom architecture flows to a specific market package. For example, the Oregon Statewide ITS Architecture includes custom flows that interface with LEDS. These flows should come up as part of the traffic incident management market package but they do not.</p>	<p>DKS will follow up with Iteris about the use of custom architecture flows. [Note- since the meeting DKS has found out that Iteris is planning to allow users to assign custom flows to market packages as part of the next Turbo Architecture update.]</p>
<p>The group discussed the pros and cons of having each ODOT regional TOC as a separate element in the architecture versus one general ODOT TOCs element. The consensus was to keep them separate for now.</p>	
<p>ITS STANDARDS</p>	<p>ACTION ITEMS</p>
<p>Input on ITS standards selection and discussion:</p> <ul style="list-style-type: none"> ▪ In general ODOT looks at the market maturity of ITS standards to help decide which ones they should use as they implement new projects. ▪ ODOT uses XML as the default for TCP/IP connections. ▪ ODOT currently uses the DMS and ESS standards. 	<p>DKS will send out the draft ITS standards section of the report for the Committee to review.</p>
<p>FHWA CHECKLIST</p>	<p>ACTION ITEMS</p>
<p>DKS provided a draft FHWA checklist that demonstrates how the Oregon Statewide ITS Architecture conforms with FHWA standards. Discussion included the following:</p> <ul style="list-style-type: none"> ▪ The question was raised about whether the architecture should include a list of agreements. The general consensus was that agreements should be defined at the project level. ▪ The answer to all of the questions under Criteria 11: Using the Regional ITS Architecture is yes. The comments should describe how the architecture is used as part of the systems engineering process. 	<p>DKS will incorporate comments and include the FHWA checklist in the appendix of the Summary Document.</p>
<p>PROJECT SEQUENCING COMMENTS</p>	<p>ACTION ITEMS</p>
<p>Delete the “Approximate Time Horizon” column.</p>	<p>DKS will incorporate the comments into the project sequencing matrix and send to the Committee for review.</p> <p>Chuck will provide DKS with descriptions of the TOCS Event Management and Traffic Management projects.</p> <p>Hau will provide DKS with a description of the Operations Management System project.</p>
<p>Delete the following projects (some are already included under other projects):</p> <ul style="list-style-type: none"> ▪ CNIC Exclusion Move and Support ▪ Regional Trip Planner – Release 1 ▪ Page Notification System Upgrade ▪ Maintenance Kiosks – Phase 2 ▪ Develop Incident Management Strategies ▪ PDCC CAD Message Broker Expansion ▪ Wireless (Wi-Fi) Shared Resources ▪ TripCheck: City Arterial Integration ▪ Advanced Transportation Controller (ATC) Deployment ▪ Weather Enhancement Project ▪ PORTAL Data Warehouse Stakeholder Expansion ▪ TOCS: Law Enforcement Integration ▪ TOCS: VII Integration ▪ Alternate Route Response Plans 	

<ul style="list-style-type: none"> ▪ Automated Roadway Treatment ▪ PORTAL Data Warehouse Automated Reporting ▪ Archive Management ▪ TOCS: Rail Crossing Integration ▪ Predictive Algorithm Applications ▪ TripCheck – Release 3 ▪ State and Local Traffic Signal Integration ▪ Fleet Management System ▪ VII: Weather Warning ▪ TripCheck: Travel Time Estimates ▪ TOCS: DMS Integration 	
<p>Move the following projects to the 2007 – 2009 Biennium:</p> <ul style="list-style-type: none"> ▪ Operations Performance Measures System (rename as Operations Management System) ▪ TripCheck: Regional Trip Planning, Routes and Schedules ▪ Statewide Route Probes (rename as Portland Route Probes) 	
<p>Move the following projects to the 2009 – 2011 Biennium:</p> <ul style="list-style-type: none"> ▪ 511: Transit Agency Integration ▪ Regional Trip Planner: Itinerary Planning ▪ PDCC Intelligent Message Routing (add as a new project) 	
<p>Move the following projects to after the 2009 – 2011 Biennium:</p> <ul style="list-style-type: none"> ▪ Travel Time Forecasts (rename as TripCheck: Travel Time Forecasts) ▪ Ramp Meter NTCIP Compliance ▪ Weather Probes ▪ Road Weather Forecasting System ▪ Winter Maintenance Decision Support System 	
<p>Other Project-Specific comments include the following:</p> <ul style="list-style-type: none"> ▪ Rename TOCS: Release 1 as TOCS: Event Management. ▪ Rename TOCS: Release 2 as TOCS: Traffic Management. ▪ Delete “Release 2” from TripCheck: Release 2 PDA/RSS project name. RSS stands for really simple syndication. ▪ Combine Local Agency/Utility Activity Entry Tool for Maintenance, Construction, and Incidents with TTIP Special Events Interface and rename it TripCheck: Local Options. TTIP will be the interface between TripCheck and local agencies. ▪ Update name and description for TripCheck: Information Tailoring. The goal of the project is to provide travelers with customized information about their commute/frequently traveled routes. The project may also include notification features. ▪ Rename 511 Enhancements as 511 System Replacement. ODOT plans to replace the entire system. ▪ Add the development of alternate response plans to the description for the TOCS Response Plan Management project. ▪ Combine TOCS: Integration with Statewide Traffic Signal System and TOCS: Freeway/Arterial Integration into one project and update the description (e.g. integration between traffic signals and ramp meters at interchanges). 	

- Replace “Region 1” with “City of Portland” in the project name and description for TOCS: Region 1 Tow Desk Integration.
- Describe smart work zone management systems under the Work Zone/Special Event Portable Management System project.
- Update the description of the Probe Surveillance project to focus on VII and using personal vehicles as probes.
- Update the description of the EOC and TOC Integration project to focus on software integration between TOCS and the software used by OEM.

NEXT STEPS

<u>Task</u>	<u>DKS</u>	<u>Committee</u>
▪ Architecture Flows	▪ Finalize Draft Flows	▪ Review
▪ Project Sequencing	▪ Update Draft Matrix, Draft Report Text	▪ Review
▪ ITS Standards	▪ Select ITS Standards in Turbo, Draft Report Text	▪ Review
▪ Summary Document	▪ Incorporate all Committee comments	▪ Final Review