

**APPENDIX 1
CITY OF PORTLAND INTERVIEW NOTES**

Responses to Questions by:

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City of Portland Project: Cost: \$200,000

Project Devices:

- 2 Variable Message Signs
- 6 Changeable Message Signs (one or two messages only)
- 2 Additional Loop Detection Stations
- 5 Camera Locations
- Fiber Communication to VMS

Coordination—The key to any coordination is a good working relationship among agencies. In this Region, the agencies have formed a regional committee (TransPort) that meets regularly on ITS issues, funding, and project coordination.

Question 1: Any communication problems between stakeholders/project team members?

Response: No real communication problems occurred between staff or other agencies. The project was specifically split, so that ODOT funded and coordinated construction of the devices along I-5 Freeway, the City of Portland funded and coordinated projects along the arterial (Barbur Blvd.), and a consultant was hired to coordinate the development of the incident management scenarios.

Question 2: Did the stakeholders work together well and if so what did they do to make the process go smoothly?

Response: This Region is very fortunate in that regarding ITS projects, significant effort has been made to plan and coordinate projects in the Portland Metropolitan Area (includes three counties in Oregon, one county in Washington, plus several cities). A Regional committee (TransPort) was formed over 6 years ago that has representatives from the two states, the four counties, four cities (Portland, Vancouver, Gresham, Beaverton), two transit agencies (Tri-Met, C-TRAN), and a representative from Portland State University.

Question 3: Any other institutional problems concerning integration of system between different jurisdictions.

Response: There were no institutional problems concerning integration of systems between agencies. The City of Portland and ODOT have worked together for years to have systems that are as compatible as feasible with each other, with the goal of sharing devices and operation between agencies. The City of Portland and ODOT Region 1 share fiber communication lines with each other and with the regional transit agency, Tri-Met. The City's Traffic Operation Center (TOC) and ODOT's Traffic Management Operation Center (TMOC) are connected via fiber communication, and for instance staff can share the operation of all cameras (both City and ODOT), from either center.

Contractors/Vendors

Question 4: Any issues with contractors, vendors?

Response: There was some question regarding the vendor of the Changeable Message Signs (CMS), meeting the original price quote for the signs. No other issues on the City phase of this project.

Question 5: Any specific issues during installation/construction?

Response: No issues with the City phase. The contractor used was a contractor that does a considerable amount of signal construction/installation work for the City.

Project Development Procedure

Question 6: Any issues concerning the procedures that were used to implement project.

Response: Again, the City managed the installation of the ITS infrastructure on their portion of the project, and ODOT managed their project. There were regular discussions regarding type of installations and operating requirements. Coordination was not a major issue.

MOU/Interagency Agreements

Question 7: Was an MOU put together for this project or were the existing MOU's between the agencies adequate.

Response: This project was one of several listed in the Model Deployment Grant submitted by this Region. All regional partners signed an MOU as part of this grant submittal. There is an existing MOU between several regional partners on the sharing of the fiber communication between agencies.

Question 8: Any issues with grating, gaining approval of, and implementing MOU's. Except for the fiber communication MOU that went through the City Council for approval, most MOU's are just documents that state the various agencies will work together, and are signed by the PDOT Director, and the ODOT Region 1 Manager, for example.

Data Archiving

Question 9: What type/where is data collected from system being archived?

Response: Very little data is being archived:

- ODOT - Ramp Meter volume data
- City – Traffic Count Data goes into a “bit bucket”

Question 10: Any data archiving/sharing issues?

Response: Little need to share data at this point. The focus has been on sharing equipment and access to systems (signal system, sign system, CCTV).

Evaluation

Question 11: Any issues with project evaluation?

Response: The system hasn't really been tested in a serious incident. The signs can be turned on at both the City and ODOT, the cameras are shared (both video and movement)

Question 12: How did the City feel about the evaluation process?

Response: No issues other than needing additional time to evaluate the incident management plans.

Funding/Budget

Question 13: Was the funding adequate to install the desired hardware along the SW Barbur Blvd. Corridor?

Response: No, the City would have desired additional funding to install another CMS sign, new dome cameras, and connect the CMS signs via fiber. The City cut back on camera locations, sign locations, and installed used equipment and poles to keep within the budget.

Question 14: What other problems related to budget/funding did they have?

Response: None. Essentially the main problem was inadequate funding for the desired hardware.

Question 15: Enough money for evaluation work, quarterly statements, misc. FHWA requirements?

Response: Money is always a problem, the City could have used additional money for infrastructure/devices along the SW Barbur Boulevard arterial. The City doesn't think the requirements were unnecessary for the quarterly statements and evaluation, but they take some time and money from other work.

Question 16: What was done that helped minimize project costs? Any other innovative financing techniques used, and relative degree of success?

Response:

- ODOT gave the City used cameras removed from other locations. These used cameras were installed along the Barbur Blvd. arterial route.
- Used poles from the City's stock pile were used as pole mountings for the VMS and CMS sign locations.

Contract

Question 17: Any difficulties creating, signing, approving contract agreements between City, ODOT, Consultants, Contractors, FHWA?

Response: Not really, just the usual time it takes paper work to go through the process.

Question 18: What contracting process was used for contractors/vendors?

Response: The City used the typical City low bid process to procure the equipment and get a contractor on board to install the equipment.

Schedule

Question 19: Was the project completed within schedule. If not, what contributed to the delays, how were those issues resolved, and was there anything that could have been done differently to minimize those delays?

Response: The City project had delays. The main issue was staffing to proceed with the design and specifications. The City had another large project (signal system computer replacement) that was underway at the same time, and a staff person that had been working on the project retired. The City delay didn't affect the ODOT project, nor consultant work effort, but has delayed the project from being able to test the incident management plan at this point.

Standards and Protocols

Question 20: Any difficulties applying applicable standards and protocols?

Response: No, there were no difficulties applying the applicable standards since the NTCIP standards for DMS (VMS) had already been adopted by the SDO (Standard Development Organization). We made sure that the vendor met the DMS NTCIP Standards.

- For the CMS we are using TAP (Telocator Alphanumeric Protocol) paging protocol.

Question 21: What process was used to ensure standards compliance?

Response: We did not do a full test. WSDOT and ODOT had already done a full test. We had the vendor give a nighttime demonstration to the agency. The sign showed it had wider viewing angle and was very visible at long distances.

In the specs we required the vendor to supply the MIB and meet the CMS NTCIP Standards.

Operations Plan

Question 22: Any issues encountered while developing, implementing, and using the incident management plan? Do the TOC operators/others that put the plan into action have any issues with it?

Response: The incident management plan has not been fully implemented and tested to date. An earlier implemented "Traffic Safety Corridor" plan that reduced the speed, and added police enforcement in the I-5 south corridor has reduced the number of incidents incurring in the study area. This coupled with the extended time to order and install the equipment has delayed the testing, and any issues/input from the TOC operators.

Question 23: Now that the operations plan is in use, notice any problems between coordination of City and ODOT while implementing incident operations during incidents?

Response: Again, it is too early to answer this question. The plans still need to be fully tested.

Staffing

Question 24: Any issues determining staffing required operating and maintaining system? What was decided concerning staffing?

Response: Staffing is a big issue for the City. The City does not staff the TOC on a consistent basis. When there is an issue/incident the City will pull staff into the TOC as necessary. This is a key point and reason why the City has worked with ODOT Region 1 staff to have an open system that can be monitored and operated at both the City's TOC and ODOT's TMOC. ODOT staffs their TMOC 24/7 365 days a year. They use their center to detect and dispatch their "COMET" vehicles to respond to incidents, and the center is used to monitor and dispatch maintenance vehicles when needed. The TMOC is in contact with the City and State Police through phone lines and radio.

Maintenance

Question 25: Any issues concerning the maintenance of the system?

Response: So far there has been only one failure of a section (module) in one of the VMS sign faces. The sign was under warranty and the failed module was replaced.

Technical Problems

Question 26: Any difficulties integrating new systems with existing legacy systems/software, or between different jurisdictional systems?

Response:

- Not anything the City/ODOT didn't anticipate. The VMS sign system NTCIP driver is not yet in the "Navigator" operations system, but soon will be.
- ODOT will have to open separate window to connect to the Signal System in order to call in alternate signal plans.
- Used standard equipment we have used previously for the CCTV video feed.
- Used standard loop detection as per other installations in the Region.

Question 27: Insufficient or incompatible infrastructure?

Response: As part of the project the City installed additional fiber communication – this was part of the project costs.

Question 28: Any problems while acquiring, installing, connecting, testing, or using system?

Response: Just the usual problems with installing equipment in the right of way.

Question 29: Any problems with the system now that it is in operation (i.e. equipment malfunctions, connections breaks, etc.)?

Response: The small CMS signs use a paging system to turn them on and off. It seems to take a long time for the signs to come on or be turned off. The City is reviewing this system.

Question 30: Was the City happy with the equipment they installed (i.e. CMS were they what was expected)?

Response:

- The City is very happy with the CMS signs. They are very legible for arterial traffic speeds, and appear well made and relatively easy to maintain.
- The CMS signs (with one or two messages only) used one width of fiber optics for the legends. On other projects, these types of signs should have two widths of fiber for better message clarity.
- The CMS use TAP (Telocator Alphanumeric Protocol) paging protocol to turn the signs on and off. On other projects, these types of signs should have different form of drivers to turn them on and off.
- While the City was happy to get the cameras for free from ODOT, they are the style such that you can not rotate 360 degrees, the operator must bring the camera back around. The dome style cameras are preferred.

Question 31: What was done correctly during the project that helped to minimize technical problems?

Response:

- City staff traveled to Spokane (where CMS signs were manufactured), to inspect the factory and review how the signs were made.
- The sign manufacturer was required to make one CMS sign and send to the City for inspection and approval before the remaining 5 signs were built.

Overall

Question 32: Does the City consider the project a success and why?

Response: It was a success in that it again showed that two agencies can work together for a common goal. It continues the sharing of equipment and expertise between the two agencies, and is the first corridor where detailed plans exist for a series of strategies for the freeway corridor and adjacent arterial corridor during an incident.

Question 33: Did the new system function as expected?

Response: Again, we still need to fully test the various plans during several actual live major incidents of some duration. Limited testing and use of the signs has taken place, but we have not tested the implementation of the incident signal timing plans as part of a major incident along the I-5 south corridor.

Question 34: What things worked well during the project and what would be changed if the project could be done over again?

Response: What seemed to work well was the arrangement that separated the funding and responsibilities by agency and corridor. No money was passed between agencies.