

**AASHTO Technology Implementation Group  
Nomination of Technology Ready for Implementation  
2005 NOMINATIONS DUE BY FRIDAY, SEPTEMBER 9, 2005**

<b>Sponsoring DOT</b>	1. Sponsoring DOT (State): New York State Department of Transportation		
<b>Primary Technical Contact</b>	2. Name: Peter Melas		
	Organization: NYSDOT, Construction Division		
	Address: 50 Wolf Road		
	City: Albany	State: NY	Zip code: 12232
	E-mail: pmelas@dot.state.ny.us	Phone: 518-457-9539	Fax: 518-485-8948
<b>Technology Description</b>	3. Name of Technology: Field Automated Communication System (FACS)		
	<p>4. Briefly describe the technology. The Field Automated Communication System (FACS) consists of a wireless work tablet computer that is constantly synchronized with a central project information database server to be used by the DOT and contactors staff working on highway construction projects.</p> <p>The importance of the wireless technology with input to a central database is to allow all project personnel to constantly be in contact with each other while working on the project(s), to readily evaluate the project schedule and immediately analyze issues that may cause delay to the project or traveling public. The agency and contractors staff will use the ruggedized tablets in the field while at the same time allowing office staff or other agencies involved to view the latest information from the field site through the internet. Each user of the system will have access to project information including contract plans, specifications, standard details, prevailing wage rates, labor compliance, project schedules and other project relevant information. The levels of access are secure and specifically tailored to the project hierarchy and any sensitive information is encrypted.</p> <p>FACS incorporates existing DOT programs and email access to interface with the tablets thereby allowing coordination with staff for progress of work and changed work which allows for efficient accounting. Additionally, the FACS ability for real-time input shall provide timely evaluation of any potential impacts or delays to the overall project schedule.</p> <p>The FACS database system is not just an electronic filing system but provides the tools to analyze and evaluate project information without delay of input by having ready access from the field location. By using the FACS database system it creates virtually a paperless project and at the completion of the contract all project data can be accessed from the database and evaluated for timely resolution of disputes or claims that previously required substantial research time of the paper records.</p>		

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5. Briefly describe the history of its development.

ShareChive, LLC is the developer of the FACS in cooperation with IBM (software development) and Northrup Grumman (hardware development). The FACS was first used on two projects for Caltrans in 2002 and 2003. During this time the system was used for daily diaries and submittal of extra work. The system was continually updated and enhanced to meet the field staff needs to simplify submittal of project information. Real time submittal of project field information showed promising benefits.

Since then, Maryland SHA piloted three projects beginning in February of 2003. Florida DOT is piloting two projects that began in April of 2004. New York State DOT is piloting a project that began in April of 2005. Illinois DOT is piloting a project that began in May of 2005. Nevada DOT is piloting a project that began in August of 2005. Minnesota DOT is piloting a project that begins in July of 2006.

The New York State Office of General Services is investigating the use of the FACS to automate their work flow with the project designer and contractor. They are looking to incorporate plans, specifications, material tracking, payment and communication (RFI).

The Granite Construction Company is using the FACS in the design-build process. They incorporate plans, specifications and daily reports in the system to share with involved agencies. The FACS is also used to monitor the quality of the construction.

In all cases ShareChive, LLC has worked with the agencies to enhance the product and customize it to the agency workflow.

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<p><b>State of Development</b></p>	<p>6. For how long and in approximately how many applications has your organization used this technology? The New York State Department of Transportation has used the technology since April of 2005 on one project and is pursuing its use on three other projects in the coming years.</p> <p>D259407 - Region 4: Replacement of the I-490 Bridge over the Genesee River in the City of Rochester Contract started in April 2005 Value: \$38M Portable Units: 6 Desktop Access: 2 Construction Duration: 3 years</p> <hr/> <p>Other Projects</p> <p><b><u>Caltrans</u></b> Contract 07-1760U4 Contract started in April 2002 Value: \$34M Portable Units: 12 Desktop Access: 5 Construction Duration: 3 years Contract 12-1257U4 Contract started in October 2003 Value: \$58M Portable Units: 22 Desktop Access: 7 Construction Duration: 5 years</p> <p><b><u>Maryland SHA</u></b> Region 3: US229 Briggs Channy Road Construction Contract started in February 2003 Value: \$30M Portable Units: 9 Construction Duration: 4 years Region 3: MD650 Powder Mill Road Improvement Contract started in February 2003 Value: \$10M Portable Units: 8 Construction Duration: 2.5 years Office of Traffic and Safety: Areawide Traffic Signal Construction Contract started in April 2003 Value: \$3M Portable Units: 3</p> <p><b><u>Florida DOT</u></b> Region 3: Reconstruction of SR 44 and 14, Deland Contract started in April 2004 Value: \$26M Portable Units: 5 Desktop Access: 5 Construction Duration: 2.5 years</p> <p><b><u>Illinois DOT</u></b> Region 3: Highway improvement on Hwy 80, LaSalle County Contract started in May 2005 Value: \$9M Portable Units: 8 Construction Duration: 1.5 years</p> <p><b><u>Nevada DOT</u></b> District 1: US95, Laughlin Highway Improvement Contract started in August 2005 Value: \$29M Portable Units: 8 Construction Duration: 2 years</p> <p><b><u>Minnesota DOT</u></b> #2782-281: Reconstruction of 35w between 42<sup>nd</sup> and 66<sup>th</sup> Street Contract to begin July 2006 Value: \$242M Portable Units: 6 Desktop Access: 30 Construction Duration: 4 years</p>
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	<p>7. What additional development is necessary to enable routine deployment of the technology? Full integration with legacy systems, update to higher speed modem, confirm labor compliance security issues related to sensitive information.</p> <p>Develop an electronic signature that allows reports to be transmitted electronically with the electronic signature attached. Need approval by FHWA and agency.</p> <p>Develop an administration module for agencies to load contract documents and electronic reference material.</p>																				
	<p>8. Have other organizations used this technology? If so, please list organization names and contacts.</p> <table border="1" data-bbox="310 569 1482 737"> <thead> <tr> <th>Organization</th> <th>Name</th> <th>Phone</th> <th>E-mail</th> </tr> </thead> <tbody> <tr> <td>Caltrans</td> <td>Gene Mallett</td> <td>916-653-4686</td> <td><a href="mailto:Gene.Mallett@dot.ca.gov">Gene.Mallett@dot.ca.gov</a></td> </tr> <tr> <td>Maryland SHA</td> <td>Michael Lynch</td> <td>410-545-8018</td> <td><a href="mailto:mlynch@sha.state.md.us">mlynch@sha.state.md.us</a></td> </tr> <tr> <td>Florida DOT</td> <td>Jonathan Duazo</td> <td>386-943-5347</td> <td>Jonathan.Duazo@dot.state.fl.us</td> </tr> <tr> <td>Illinois DOT</td> <td>Steve Peterburs</td> <td>217-782-9388</td> <td>PeterbursSL@dot.il.gov</td> </tr> </tbody> </table>	Organization	Name	Phone	E-mail	Caltrans	Gene Mallett	916-653-4686	<a href="mailto:Gene.Mallett@dot.ca.gov">Gene.Mallett@dot.ca.gov</a>	Maryland SHA	Michael Lynch	410-545-8018	<a href="mailto:mlynch@sha.state.md.us">mlynch@sha.state.md.us</a>	Florida DOT	Jonathan Duazo	386-943-5347	Jonathan.Duazo@dot.state.fl.us	Illinois DOT	Steve Peterburs	217-782-9388	PeterbursSL@dot.il.gov
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Illinois DOT	Steve Peterburs	217-782-9388	PeterbursSL@dot.il.gov																		
<p style="text-align: center;"><b>Potential for Payoff</b></p>	<p>9. What benefits has your organization realized from using this technology? Include cost savings, safety improvements, transportation efficiency or effectiveness, environmental benefits, or other advantages over other existing technologies.</p> <p>It is anticipated that there may potentially be a reduction in staff costs, including the contractor's staff costs by one time submittal of information. Additionally the efficiency to electronically submit and retrieve project information in real-time shall also reduce travel time between project locations, the field office and main office for coordination with project management. The information should be more accurate due to one time entry in lieu of redundant hard copy paper input. This shall allow for more inspection and review time for quality assurance of the actual construction work. A searchable database of all project records will be available which will facilitate research for dispute and claim resolution and other project needs. By automating the base lining, collection, integration, dissemination and management of all aspects of the project information process and providing real-time communication between all relevant personnel, a host of valuable efficiencies and savings are readily realized for all parties.</p> <p>Additionally, projects are accelerated more often these days due to various issues and also use alternative bidding methods. These projects add additional construction administration challenges to analyze and prepare for contract changes. The tools that FACS provides will help expedite the review and analysis, thereby lessen the risk of delay to the project and traveling public. The substantial benefit by using FACS to reduce the risk of delay may offset some of the risk to proceed with projects that have an accelerated schedule.</p>																				
<p style="text-align: center;"><b>Implementation Potential</b></p>	<p>10. Please describe what actions another transportation agency would need to take to adopt this technology.</p> <p>Develop specifications unique to their construction administration process and incorporate them into the contract so that the requirements of the FACS can be considered within the scope of the project.</p> <p>11. What is the estimated cost, effort, and length of time required for procurement or adoption by another transportation agency?</p> <p>Set up cost per project is based on the contract amount:  Projects \$ 2 to \$ 15M - \$8,000  Projects \$15 to \$ 50M - \$15,000  Projects \$50 to \$150M - \$20,000</p> <p>The cost per unit of ruggedized tablets is based on project staff requirements: \$550 per unit</p> <p>Once the specifications are developed and incorporated into the project the time required to incorporate the system will be loading project information into the system and training.</p>																				

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	12. What organization(s) currently supply and provide technical support for this technology? IBM and Northrup Grumman
	13. Please describe any legal, regulatory, social, intellectual property, or other issues that could affect ease of implementation. Approval of electronic signature and/or forms would affect ease of implementation.
<b>Willingness to Champion</b>	14. Is the sponsoring DOT willing to promote this technology to other states, if partially supported by the AASHTO Task Force on Technology Implementation? X Yes <input type="checkbox"/> No
<b>Date Submitted</b>	15. Date: September 9, 2005

16. Please include image(s) of sketches or photographs, if available X Image(s) are attached.\*

[slides\slideshow.pdf](#)

\*

<b>AASHTO CONTACT</b>	MARTY VITALE ADMINISTRATIVE COORDINATOR FOR ENGINEERING AASHTO	PHONE: 202.624.5862 FAX: 202.624.5469 <a href="mailto:mvitale@aaashto.org">mvitale@aaashto.org</a>
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# Field Automated Communication System



FACS  
Screenshots



 SHARECHIVE

JOURNAL LIST	USER NAME	HOURS	MILES	DAY AND DATE	REPORT ID	START	STOP	REPORT CATEGORY	WEATHER
	Peter Melas	9.0	12	05/20/2005	123	07:00	04:30	General	WEATHER

PAY ITEM REMARKS	
619.01 BASIC MAINTENANCE AND PROTECTION OF TRAFFIC	▲
The contractor set up a lane closure with alternating one way traffic using flaggers.	
206.04 TRENCH AND CULVERT EXCAVATION - O.G.	
Contractor used a backhoe to do the trench and culvert excavation. Trench dimensions are 3m wide by 1.5m deep and 40m long.	
603.9818 SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORMDRAIN 450 MM DIAMETER	▼

REMARKS	
▲	
At 11:40am there was a motor vehicle accident. Driver inattention caused a rear end accident. Police were called and they arrived at 11:55am. EIC notified at 11:45am.	
▼	

EQUIPMENT	LABOR	TOTAL	QTY / HOURS	
CASE Back Hoe		1 /8	/	1 /8 /
	Operator	1 /8	/	1 /8 /
P.U. w/equipment		1 /4	1 /4	/ /
	Flagger	2 /8	2 /8	/ /
	Laborer Foreman	1 /8	/	/ 1 /8
	Laborer	1 /8	/	/ 1 /8

PAY ITEMS	QTY	RAID
619.01 BASIC MAINTENANCE AND PROTECTION OF TRAFFIC		
206.04 TRENCH AND CULVERT EXCAVATION - O.G.	180	
603.9818 SMOOTH INTERIOR CORRUGATED POLYETHYLENE	40	
DESC	DESC	DESC

COLUMN CONTROLS	
+	-

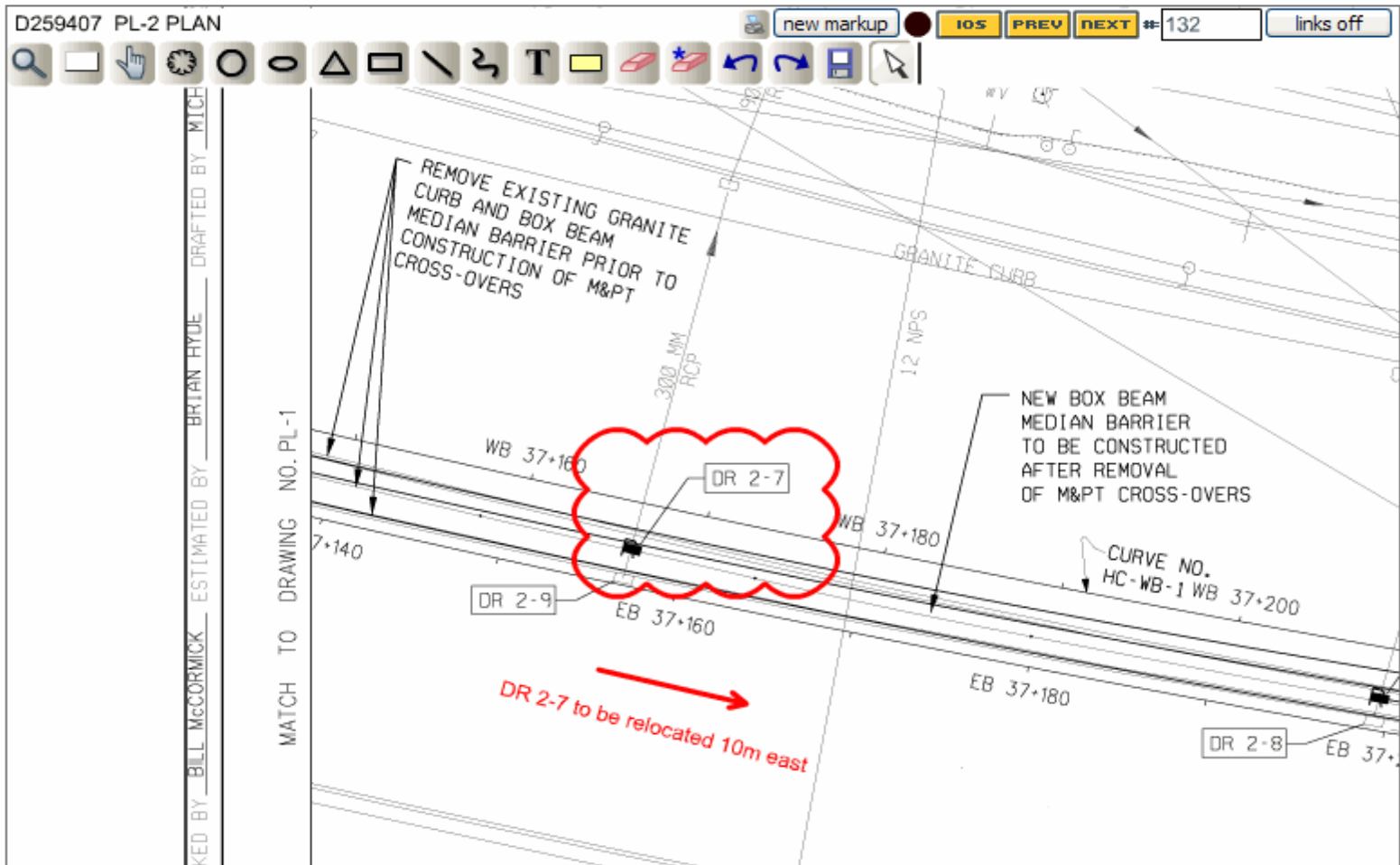
  

ROW CONTROLS	
+	-

SUBMIT
SYNC
DELETE
Editing

## DAILY WORK REPORT



## PLAN SHEET MARK-UP



**Item Quantity Report for Date Range: 08/24/2005 to 08/26/2005**

<b>Pay Item Data</b>							
Item #	Description	Qty For Range	Qty To End Date	Est. Qty	Qty Units	\$/Qty	\$ Total For Range
202.120001 ES-2	REMOVING EXISTING SUPERSTRUCTURES	0.00 %	40.00%	1.00	LS	2,100,000.00	0.000
555.09	CONCRETE FOR STRUCTURES, CLASS HP	0.00	1,154.82	1,975.00	CM	500.00	0.000
556.03	STUD SHEAR CONNECTORS FOR BRIDGES	3,681.00	3,681.00	109,054.00	EACH	1.90	6,993.900
564.0503	STRUCTURAL STEEL, TYPE 3	0.00 %	65.99%	1.00	LS	6,700,000.00	0.000
564.0505	STRUCTURAL STEEL, TYPE 5	0.00 %	39.00%	1.00	LS	2,300,000.00	0.000
16572.030001	SHOP APPLIED STRUCTURAL STEEL PAINT SYSTEM	0.00	10,432.17	33,440.00	SQM	40.00	0.000
619.01	BASIC MAINTENANCE AND PROTECTION OF TRAFFIC	0.00 %	38.83%	1.00	LS	300,000.00	0.000
04619.9002	GOOD SAMARITAN VEHICLE	5.00	106.00	1,000.00	DAY	500.00	2,500.000
04619.9010	TOW TRUCK SERVICE	1.00	43.00	117.00	EACH	150.00	150.000

<b>Total \$ amount for the period between 08/24/2005 and 08/26/2005</b>	<b>\$9,643.900</b>
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**POWERED BY FACS**

## **ITEM QUANTITY REPORT**

ID	Description	Start	End	Duration	Predecessors	Successors
1242	ST1 - NYSDOT Review Str Lft plans	2/15/2011	2/15/2011	0		
1243	ST2-SUB-INSTALL SIGNS FOR STAGE 2	2/15/2011	2/15/2011	0	1242	
1244	ST2-SIGNS INSTALL SIGNS FOR STAGE 2	2/15/2011	2/15/2011	0	1243	
1245	ST2-CLOSE LB RAMP WITH EXISTING	2/15/2011	2/15/2011	0	1243	
1246	ST2-MOVE BARRIER TO SHIFT WB	2/15/2011	2/15/2011	0	1243	
1247	ST2-DRAWL & PIN BARRIER TO EXISTING	2/15/2011	2/15/2011	0	1243	
1248	ST2-INSTALL GLARE SCREEN ON	2/15/2011	2/15/2011	0	1243	
1249	ST2-CLEAN, SWEEP & PREP EB LANE	2/15/2011	2/15/2011	0	1243	
1250	ST2-MOVE BARRIER FOR EB TRAFFIC	2/15/2011	2/15/2011	0	1243	
1251	ST2-SWITCH EB TRAFFIC - INCLUDING	2/15/2011	2/15/2011	0	1243	
1252	ST2-INSTALL TEMPORARY FENCE ON	2/15/2011	2/15/2011	0	1243	
1253	ST2-SHORE PIER 2 & 3 FOR DEMOLITION	2/15/2011	2/15/2011	0	1243	
1254	ST2-REMOVE BRIDGE RAILLALLI - 400	2/15/2011	2/15/2011	0	1243	
1255	ST2-REMOVE ASBESTOS FROM	2/15/2011	2/15/2011	0	1243	
1256	ST2-REMOVE PARAPET SPANS 1,4	2/15/2011	2/15/2011	0	1243	
1257	ST2-DENO DECK SLABS & BACK TO 1	2/15/2011	2/15/2011	0	1243	
1258	FORM PIER 4 EBWB PEDESTALS	2/15/2011	2/15/2011	0	1243	
1259	POUR PIER 4 EBWB PEDESTALS	2/15/2011	2/15/2011	0	1243	
1260	CURE PIER 4 EBWB PEDESTALS FOR	2/15/2011	2/15/2011	0	1243	
1261	ST2-SAWCUT MEDIAN OVER RIVER	2/15/2011	2/15/2011	0	1243	
1262	ST2-REMOVE SLABS MEDIAN OVER	2/15/2011	2/15/2011	0	1243	
1263	ST2-REMOVE GIRDER 123	2/15/2011	2/15/2011	0	1243	
1264	ST2-DENO RIVER WALL FOR BARGE	2/15/2011	2/15/2011	0	1243	
1265	ST2-SET TEMPLATES FOR PIPE PILES	2/15/2011	2/15/2011	0	1243	
1266	ST2-REMOVE PARAPETS SPANS 6-12	2/15/2011	2/15/2011	0	1243	
1267	ST2-CLOSE RAMP 2 & SAWCUT DECK	2/15/2011	2/15/2011	0	1243	
1268	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1269	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1270	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1271	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1272	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1273	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1274	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1275	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1276	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1277	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1278	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1279	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1280	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1281	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1282	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1283	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1284	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1285	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1286	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1287	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1288	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1289	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1290	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1291	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1292	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1293	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1294	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1295	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1296	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1297	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1298	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1299	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	
1300	ST2-REMOVE PARAPETS SPAN 14, 3A	2/15/2011	2/15/2011	0	1243	

# CPM SCHEDULE

D259407 + **Common Data +** Correspondence + Search Help + Log Off << >>

Standard Specifications
Metric Standard Sheets
Bridge Manual
MURK Manual +
Underground Utility Manual

### **Project D259407 Summary**

(Contract No. D259407 F.A.P No. Q100-4490-123 P.I.N. 4490.12; Replace Rte. I490 Bridge O/Exchange Blvd., Genesee River, & South Avenue; City of Rochester Monroe County Contr: Edward Kraemer & Sons, Inc.)

Peter Melas ( manager )



**New York State Department Of Transportation**

BRIDGE REPLACEMENT I490/GENESEE RIVER

### **REFERENCE MATERIAL**

D259407 + Common Data + Correspondence + Search Help + Log Off << >>

D259407  Common  Journal

anchor bolt

search

[D259407: 78 results](#)

[common: 47 results](#)

[journal: 67 results](#)

## **SEARCH FUNCTION**