

Louisiana DOTD Work Plan for Developing a TAMP

May 2013



U.S. Department of Transportation
Federal Highway Administration

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1.0 Introduction

In July 2012, Moving Ahead for Progress in the 21st Century (MAP-21) established a performance-based highway program with the goal of improving how Federal transportation funds are allocated. The legislation requires each state department of transportation (DOT) to develop a risk-based Transportation Asset Management Plan (TAMP) that contains the following elements:

1. A summary listing of the pavement and bridge assets on the National Highway System in the State, including a description of the condition of those assets;
2. Asset management objectives and measures;
3. Performance gap identification;
4. Lifecycle cost and risk management analysis;
5. A financial plan; and
6. Investment strategies.

To provide guidance on meeting these requirements, the Federal Highway Administration is assisting the Louisiana, Minnesota, and New York DOTs to develop their TAMPs.

This document presents a work plan for developing the Louisiana Department of Transportation and Development's (LA DOTD) TAMP. This work plan is based on the results from a LA DOTD TAMP workshop. Participants at this workshop included members of the LA DOTD's TAMP Steering Committee, LA DOTD Executive Staff, representatives from FHWA, and members of the consultant team. The objectives of the workshop were to:

- Walk through each section of the TAMP document;
- Discuss existing LA DOTD resources and data related to each section;
- Identify gaps between LA DOTD's existing processes and resources and those required to develop the TAMP; and
- Determine an approach for addressing the gaps and developing the required materials.

As illustrated in Figure 1.1, the agenda for the workshop was organized around the sample TAMP outline provided in the FHWA *Generic Work Plan for Developing a TAMP*, which is available on the FHWA website.

Figure 1.1 LA DOTD TAMP Workshop #1 Agenda

Part 1 – Introductions and Overview	8:00 – 8:45
1. Introductions	
2. Overview of FHWA effort and MAP-21 requirements	
3. Discuss LA DOTD’s TAMP objectives	
4. Confirm assets to include in the TAMP	
Part 2 – Key Development Activities	
5. Asset Inventory and Conditions	8:45 – 9:15
a. Purpose of this section of the TAMP	
b. Existing DOT resources and data that are relevant	
c. Gaps in existing resources	
d. Approach for addressing the gaps	
e. Key development activities	
6. Asset Management Objectives and Measures	9:15 – 10:00
a. Purpose of this section of the TAMP	
b. Existing DOT resources and data that are relevant	
c. Gaps in existing resources	
d. Approach for addressing the gaps	
e. Key development activities	
<i>Break</i>	10:00-10:15
7. Performance Gap Assessment	10:15 – 11:00
a. Purpose of this section of the TAMP	
b. Existing DOT resources and data that are relevant	
c. Gaps in existing resources	
d. Approach for addressing the gaps	
e. Key development activities	
8. Lifecycle Cost Considerations	11:00 – 11:30
a. Purpose of this section of the TAMP	
b. Existing DOT resources and data that are relevant	
c. Gaps in existing resources	
d. Approach for addressing the gaps	
e. Key development activities	
<i>Lunch</i>	11:30 – 12:00
9. Risk Management Analysis	12:00 – 12:45
a. Purpose of this section of the TAMP	
b. Existing DOT resources and data that are relevant	
c. Gaps in existing resources	
d. Approach for addressing the gaps	
e. Key development activities	

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| 10. Financial Plan | 12:45 – 1:30 |
| a. Purpose of this section of the TAMP | |
| b. Existing DOT resources and data that are relevant | |
| c. Gaps in existing resources | |
| d. Approach for addressing the gaps | |
| e. Key development activities | |
| <i>Break</i> | 1:30 – 1:45 |
| 11. Investment Strategies | 1:45 – 2:30 |
| a. Purpose of this section of the TAMP | |
| b. Existing DOT resources and data that are relevant | |
| c. Gaps in existing resources | |
| d. Approach for addressing the gaps | |
| e. Key development activities | |
| 12. Asset Management Process Enhancements | 2:30 – 3:15 |
| a. Purpose of this section of the TAMP | |
| b. Existing DOT resources and data that are relevant | |
| c. Gaps in existing resources | |
| d. Approach for addressing the gaps | |
| e. Key development activities | |
| Part 3 – Summary and Next Steps | 3:15 – 4:00 |
| 13. Summary of key development activities | |
| 14. Roles | |
| 15. Implementation schedule | |
| 16. Next steps | |

The activities defined in this work plan are based on the discussions from this workshop and recommendations from FHWA and the consultant team. They are organized around the five questions defined in the FHWA's *Generic Work Plan for Developing a TAMP*:

1. What is the purpose of the TAMP?
2. Who should be involved in developing the TAMP?
3. What should the TAMP look like?
4. What information is needed to develop the TAMP?
5. How do we move from a concept to a final plan?

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2.0 What is the Purpose of the TAMP?

2.1 WHAT ARE LA DOTD'S OBJECTIVES FOR DEVELOPING A TAMP?

LA DOTD identified the following objectives for its TAMP:

1. Document LA DOTD's policies and processes for allocating funds to preserve and maintain the existing highway system. In some cases, the existing policies and processes are sound. In other cases, they may need to be updated to reflect asset management best practices, such as considering whole life costs, incorporating risk management into the asset management process, and understanding the relationship between funding levels and future conditions of the system.
2. Determine how existing plans (e.g., the Statewide Transportation Improvement Program, Statewide Transportation Plan, Strategic Plan, etc.) tie together in terms of a comprehensive, coordinated asset management process.
3. Develop an implementation plan for making asset management enhancements after the initial TAMP is complete.
4. Develop and document a TAMP governance process that defines who owns the TAMP, how it will be used throughout LA DOTD, how it relates to other LA DOTD documents, when the TAMP will be updated, and how LA DOTD will periodically assess its asset management programs.
5. Meet the requirements of MAP-21.

2.2 WHICH ASSETS WILL BE INCLUDED?

LA DOTD's initial TAMP will address pavements and bridges, as follows:

- Pavements – NHS, plus other state-owned pavements.
- Bridges – NHS, plus other state-owned bridges.

Additional assets will be added in future versions of the TAMP. LA DOTD will identify these assets during the TAMP development process.

2.3 WHO WILL CHAMPION AND MANAGE THE EFFORT?

LA DOTD has identified the following champion and co-leads for its TAMP development effort:

- Executive champion - Michael Bridges, P.E., Undersecretary, Office of Management & Finance
- Co-leads - Jason Chapman, P.E., Data Collection & Management Systems Administrator; and Vince Latino, P.E., Chief of Maintenance

2.4 WHAT IS THE TIMEFRAME FOR PLAN DEVELOPMENT?

LA DOTD will develop materials for the TAMP, with the goal of having a draft complete by December 2013. This provides ample time for review cycles by FHWA and LA DOTD staff. The final TAMP will be complete by May 2014. A more detailed list of milestones and dates is provided in Section 6. These dates may have to be adjusted to account for modifications needed to comply with the final requirements established through the MAP-21 rule-making process.

3.0 Who will be Involved in Developing the TAMP?

In addition to the champion and co-leads identified in Section 2, LA DOTD has formed a TAMP Steering Committee. The Steering Committee is responsible for setting the direction for the TAMP development effort, providing materials and analysis required to support the development process, and ensuring that the various elements of the process proceed in a coordinated manner. LA DOTD's Steering Committee consists of representatives from the following offices:

- Executive Staff
 - Secretary
 - Deputy Secretary
 - Undersecretary for Office of Finance and Administration
 - Assistant Secretary for Multimodal Planning
 - Assistant Secretary for Operations
 - Chief Engineer
- Office of the Secretary
 - Quality & Continuous Improvement Program
- Office of Multimodal Planning
 - Bridge Management
 - Pavement Management
- Office of Management & Finance
 - Information Technology
- Office of Engineering
 - Road Design
- Office of Operations
 - Maintenance Management
 - LA DOTD Districts

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4.0 What will the TAMP Look Like?

Following is a draft annotated outline for LA DOTD's TAMP. The sections are consistent with the sample outline provided in the FHWA *Generic Work Plan for Developing a TAMP*. However, the contents of each section have been customized for LA DOTD.

Table 4.1 Annotated TAMP Outline

Section	This Section will...
1. Asset Inventory and Conditions	<ul style="list-style-type: none"> Summarize the inventory and condition of pavements and bridges. The TAMP will address the NHS and other state owned roadways. Summarize what is not included in the inventory and currently is owned by local agencies, but will be added to the State inventory for analysis when data collection is complete.
2. Asset Management Objectives and Measures	<ul style="list-style-type: none"> Describe the objectives of the asset management program. Describe measures and levels of service - both customer level of service and technical level of service. Present condition targets. Document the process used to develop the above items.
3. Performance Gap Assessment	<ul style="list-style-type: none"> Describe short-term and long-term asset management planning horizons. At a minimum, the TAMP will reflect a 10-year planning horizon. The bridge analysis may reflect a second, longer term horizon. Describe traffic growth and demand on the system. Present an analysis of future funding versus condition scenarios. Illustrate the performance gap between existing conditions and future condition targets. Describe how non-condition related needs (such as capacity needs) have been incorporated into the gap analysis. Document the process used to conduct the performance gap analysis.

Section	This Section will...
4. Lifecycle Cost Considerations	<ul style="list-style-type: none"> • Describe “lifecycle costs” and explain why they are important. • Describe how bridges and pavements are managed through their whole life – from inception to disposal. This includes identifying a sequence of activity such as maintenance, preservation, rehabilitation, etc. that will allow LA DOTD to achieve and sustain a desired level of services over the lifecycle of the assets at minimum practicable cost. • Describe how lifecycle costs are incorporated into the models used by the pavement and bridge management systems. • Describe the typical lifecycle cost of adding a new lane mile of roadway, and document a process for considering these when evaluating potential roadway expansion projects. • Document a process for considering lifecycle costs when prioritizing pavement and bridge projects.
5. Risk Management Analysis	<ul style="list-style-type: none"> • Describe risks associated with implementation of the TAMP (e.g., cost escalations, budget cuts, stakeholder opinion, environmental delays, etc.) • Describe the risks associated with providing continuity of service in relation to physical assets and system resiliency such as hazard risks, extreme events, and asset failures. • Present the highest priority bridges in the state, and document a process for how these results will be incorporated into future asset management planning cycles. • Present a risk register that includes the following for each identified risk – likelihood of occurrence, consequences of occurrence, and mitigation activities. • Document the process used to evaluate risks.
6. Financial Plan	<ul style="list-style-type: none"> • Summarize historic funding levels for the bridge and pavement programs. • Describe the amount of funds expected to be available for the bridge and pavement programs, and describe where these funds will come from. • Describe how these funds will be allocated over the 10-year plan horizon. • Present funding levels in terms of the financial sustainability of the highway system. • Document the process for developing the financial plan.
7. Investment Strategies	<ul style="list-style-type: none"> • Present investment strategies, which will be based on the results from the activities documented in previous sections (e.g., performance gap analysis, life cycle cost considerations, risk assessment, financial analysis, etc.). • Document the process used to select investment strategies.

Section	This Section will...
8. Asset Management Process Enhancements	<ul style="list-style-type: none">• Document a TAMP governance process – who owns the TAMP, how is it used, how it relates to other documents, when will it be updated, etc.• Describe priorities for asset management process enhancements.• Provide a prioritized list of assets (beyond pavement and bridges) to add to the asset management process, and describe implementation activities for each.• Document the process used to identify asset management enhancements, and a process for periodically assessing the asset management process in the future.

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5.0 What Information will be Needed to Develop the TAMP?

This section identifies the key information and work activities required to complete the LA DOTD's TAMP. The activities are organized by the TAMP outline presented in Table 4.1.

5.1 ASSET INVENTORY AND CONDITIONS

1. **Develop templates for summarizing pavement and bridge inventory and condition data.** Finalize which measures should be included in the summary, and determine how they will be presented. At a minimum, the following measures will be presented:

- a. Percent of pavements in fair or better condition; and
- b. Percent of deck area on bridges that are not structurally deficient.

Additional measures based on pavement distress data and bridge element data may also be included. Historic conditions will be provided as well as current conditions.

The inventory table will show additional inventory that will be added as part of planned highway capacity projects.

2. **Compile data needed to populate the templates.** Except as noted in activity #3, LA DOTD has all data needed to complete this summary.
3. **Identify roadway segments that have recently been added to the NHS, compare against prior NHS, and summarize the gaps.** LA DOTD is currently updating the NHS. Condition data for roadways that are added to the NHS and that were previously under the jurisdiction of an MPO will not be available for the initial TAMP. These roadways will be identified in the TAMP as a data gap.

5.2 ASSET MANAGEMENT OBJECTIVES AND MEASURES

1. **Compile and synthesis existing materials in LA DOTD's Strategic Plan, Long Range Plan, pavement and bridge management systems, dashboards and internal performance scorecards.** LA DOTD has previously defined

objectives related to asset management in its various plans. The first step is to compile and review them. Additional objectives may need to be defined.

2. **Document the performance measures that will be used throughout the asset management planning process.** LA DOTD will also document how each measure will be used. For example, LA DOTD is considering two types of measures. The first type is technical measures that are based on detailed pavement distress data (e.g., ride, rutting, cracking, and faulting), and bridge element-level data. Technical measures provide the basis for technical analysis and treatment selection. The second type is communication measures. These measures will be used to communicate, at a high level, the relationship between funding and condition, and to report on current conditions and target condition levels. Examples of this second type include percent of pavement in good/fair/poor condition and percent of bridge deck area that on bridges that are structurally deficient.
3. **Develop and implement an approach for presenting capacity, condition and maintenance Levels of Service.** One potential approach for defining condition levels of service is to use good/fair/poor categories as the basis for communicating technical condition data to non-technical audiences. LA DOTD will revisit its approach to defining good/fair/poor. For example, some LA DOTD staff felt that from the public's perspective, IRI may be the primary driver of these categories. LA DOTD also will review the level of services developed for its maintenance program, to determine if that approach could be used for the TAMP.
4. **Document the process for developing pavement and bridge condition LOS and establishing measures.** MAP-21 requires FHWA to certify each DOT's asset management process. Therefore it is recommended that in each section of the TAMP, LA DOTD provide a description of the process used to develop it.

5.3 PERFORMANCE GAP ASSESSMENT

A performance gap can be defined as the difference between a target condition and a current condition. Information on the current condition is available, as described in item #3. LA DOTD will be developing funding levels and condition targets as part of an ongoing budgeting process. The budgeting process is occurring at the same time as the TAMP development process. LA DOTD will incorporate the resulting funding levels and conditions targets into the TAMP. As such, it is vital for LA DOTD to inform the budgeting process by providing information, data and recommendations from its asset management efforts so that these resources can be used throughout the decision making process.

Table 5.1 shows the relationship between LA DOTD's budgeting process and the TAMP sections. In many cases, materials developed by LA DOTD as part of the TAMP development process will be provided as input into the budget process. In others, results from the LA DOTD's budgeting process will be provided as

input into the TAMP development process. Coordination with the budgeting process is a critical step in the TAMP development process. Although this coordination impacts several sections of the TAMP, actions items related to it are addressed in this section because the Performance Gap Assessment section is the first TAMP section that requires results from the budgeting process.

Table 5.1 Relationship Between Asset Management Elements and the Budgeting Process

TAMP Section	These Materials will Inform the Budgeting Process	The Results of the Budgeting Process will be Reflected in these Sections
1. Asset Inventory and Conditions	√	
2. Asset Management Objectives and Measures	√	√
3. Performance Gap Assessment	√	√
4. Lifecycle Cost Considerations	√	
5. Risk Management Analysis	√	
6. Financial Plan	√	√
7. Investment Strategies	√	√
8. Asset Management Process Enhancements		

- 1. Coordinate with the LA DOTD's ongoing budgeting process.** A key early step in the TAMP development process is to determine the schedule for budgeting process, and to identify points in the process at which information from the TAMP can be provided to inform discussions. Close coordination is also required because the budgeting process will not be complete until December 2013, which is near the target competition date for a draft TAMP.
- 2. Develop and implement a process for analyzing future bridge conditions.** LA DOTD has developed a series of curves that illustrate the relationship between future pavement condition and funding level. This type of information will be used to inform the budgeting process by communicating the performance implications of various funding options. LA DOTD will develop and implement an approach for providing similar information for bridges.
- 3. Develop an approach for considering non-condition related needs into the performance gap analysis.** For example, the information regarding traffic growth and demand on the system should be considered. In addition, LA DOTD staff involved in other program areas (such as capacity improvement

and safety) should also be involved in the performance gap process. Note that NHS improvement strategies recommended by other program areas need to be included in the asset management plan if they require changes to the current physical assets. These strategies if implemented could have a significant impact on future funding needs for system preservation.

4. **Document the performance gap process.** Part of this process will occur through LA DOTD's budgeting process. A description of the budgeting process will be important for describing how condition targets in Chapter 3 (Performance Gap Assessment) were established, and how funding levels in Chapter 6 (Financial Plan) are determined.

5.4 LIFECYCLE COST CONSIDERATIONS

1. **Summarize the importance of considering life cycle costs, and describe how bridges and pavement are managed throughout their whole life.** For the purposes of the TAMP, "lifecycle costs" are defined as the costs associated with managing an asset throughout its whole life - from inception through disposal. This section should provide an overview of the typical life cycle of a pavement and a bridge, including recommended treatments.
2. **Document how lifecycle costs are addressed by LA DOTD's pavement management systems.** LA DOTD's pavement management system recommends activities based on existing conditions and life cycle cost considerations. This approach will be documented for inclusion in the TAMP.
3. **Update and document the process for incorporating lifecycle costs into district-level decision making.** For example, currently, pavement recommendations are generated centrally using a pavement management system and then provided to the Districts. Each District then evaluates and prioritizes potential work and develops a program. The process should describe how recommendations generated by LA DOTD's pavement management system are used to select pavement projects on the NHS.
4. **Develop lifecycle cost estimates for adding a new lane mile of pavement.** For example, once a lane mile of rural interstate is constructed, it costs \$X to manage it over its whole life.
5. **Develop an approach for incorporating this lifecycle cost information when evaluating and prioritizing highway expansion projects.** The current approach focuses on initial capital costs. Considering the whole life costs of expansion projects is an important step in integrating asset management considerations in to the capacity expansion program.

5.5 RISK MANAGEMENT ANALYSIS

1. **Develop an initial risk register.** LA DOTD will convene a workshop with a small number of key staff. Participants will be asked to identify key risks associated with the transportation system. The following types of risks should be addressed at this workshop: 1) risks associated with implementation of the TAMP (e.g., cost escalations, budget cuts, stakeholder opinion, environmental delays, etc.); 2) risks associated with providing continuity of the service in relation to physical assets and system resiliency such as hazard risks, extreme events, and asset failures; and 3) risks associated with program and project delivery. Participants also will be asked to assess the relative likelihood and consequences of each risk, and recommend mitigation strategies. The recommended risk mitigation strategies will be provided as input into the budgeting process, and be incorporated into Chapter 7 (Investment Strategies).
2. **Identify the highest risk bridges in the State.** LA DOTD will evaluate its bridges and identify the ones that would have the highest consequences of a performance failure. This analysis may be based on traffic volumes, freight volumes, and detour route length. LA DOTD also will develop a process for incorporating these results into future asset management planning cycles.
3. **Document the process used for the risk analysis.** LA DOTD will document its process for developing the initial risk register and incorporating the results into the budgeting and strategy development processes.

5.6 FINANCIAL PLAN

1. **Compile historic funding levels for NHS pavements and bridges.** Ideally, the timeframe for the historic funding levels will be consistent with timeframe used to present historic condition levels in Chapter 1 (Asset Inventory and Condition).
2. **Compile existing information on future revenue projections.** LA DOTD will summarize revenue projections over the 10-year asset management planning horizon, including the sources of the revenue.
3. **Summarize the program funding levels resulting from the ongoing budgeting process.** The TAMP will present program-level funding levels for the 10 year planning horizon. These values will be developed as part of the budgeting process described in Section 5.3, with input from several other TAMP development activities.
4. **Develop and implement an approach for assessing the financial sustainability of the transportation system.** This approach will likely combine condition data and a comparison of needs to actual funding levels.
5. **Document the process used to develop the financial plan.** This activity overlaps significantly with activity #11. The focus of activity #11 is on the

process for setting targets. The focus of this activity is on setting funding targets. These two topics are closely related because they will both result from the LA DOTD's budgeting process.

5.7 INVESTMENT STRATEGIES

1. **Define investment strategies.** Based on the results of the previous activities, such as the performance gap analysis, risk assessment, and financial planning, LA DOTD will conduct a workshop to define investment strategies for the TAMP. The strategies will be provided as input into the budgeting process described in activity #8.
2. **Document the process used to define investment strategies.**

5.8 ASSET MANAGEMENT PROCESS ENHANCEMENTS

1. **Conduct the asset management self-assessment exercise.** Distribute the self-assessment questionnaire to members of the TAMP steering committee and compile the results.
2. **Conduct the gap analysis process described in the AASHTO Asset Management Guide, A Focus on Implementation.** LA DOTD will conduct the gap analysis with a subset of the asset management steering committee.
3. **Throughout the TAMP development process, identify opportunities for process, system and data enhancements.** LA DOTD will keep a running list of opportunities identified as it completes its initial TAMP. These items will be combined with the opportunities identified during the self-assessment exercise and gap analysis process.
4. **Determine which assets should be addressed in future asset management planning cycles, and identify implementation activities.** While the initial TAMP will focus on pavements and bridges, it is LA DOTD's intent to apply asset management principles and techniques to additional priority assets in the future. LA DOTD has already begun the process of prioritizing additional assets for asset management enhancements. They will complete this process and incorporate the results into the TAMP.
5. **Combine the results of activities #28 through #31 into an asset management improvement plan.** LA DOTD will prioritize the enhancement opportunities and develop a phased approach for implementing them.
6. **Document the process used to develop the asset management enhancement plan.**
7. **Develop and document a TAMP governance process.** This process will define who owns the TAMP, how it will be used throughout LA DOTD, how it relates to other LA DOTD documents, when the TAMP will be updated, and how LA DOTD will periodically assess its asset management programs.

6.0 How will LA DOTD Move from a Concept to a Final Plan

In addition to the TAMP steering committee, which will meet periodically throughout the development process, LA DOTD will convene a series of small working groups to conduct some of the key activities identified in Section 5. For example, small groups will be formed to discuss risks and to work through the asset management gap analysis process. The two TAMP co-leads will facilitate all work, and combine results as needed for review and discussion by the steering committee.

The development process will proceed largely along the schedule defined by FHWA for its series of monthly TAMP development webinars. However the activities related to process enhancements have been moved up to facilitate completion of a draft TAMP in December. Also, final targets and funding levels will not be available until mid-December.

Table 6.1 presents key milestones and dates. Throughout the table the word “materials” is used to represent all raw materials that LA DOTD will provide the consultant team for incorporation into the TAMP document. For example, “inventory and condition materials” is used to mean all of data, tables, charts, text, etc. that LA DOTD would like to include in Chapter 1 (Asset Inventory and Conditions) section of the TAMP.

Table 6.1 Major Milestones

Date	Milestone (activities from section 5 are provided in parenthesis)
May 23, 2013	<ul style="list-style-type: none"> • Final TAMP outline
June 27, 2013	<ul style="list-style-type: none"> • List of performance measures (#4 and #5) • Approach for presenting the performance gap assessment (approach for #9 and #10) • Approach for target setting (approach for #8) • Approach for developing levels of service (approach for #6)
July 25, 2013	<ul style="list-style-type: none"> • Lifecycle cost materials (#12, #13, #14, #15, #16) • Risk approach (approach for #17 and #18) • Outline for the financial plan section (approach for #20, #21, #22, #23)
Sept 26, 2013	<ul style="list-style-type: none"> • Inventory and condition materials (#1, #2, #3) • Levels-of-service materials (#6 and #7) • Performance gap materials (#9, #10, #11)
Oct 24, 2013	<ul style="list-style-type: none"> • Risk materials (#17, #18, #19) • Asset management process enhancement materials (#27, #28, #29, #30, #31, #32, #33)
Nov 15, 2013	<ul style="list-style-type: none"> • Financial plan materials (#20, #21, #22, #23, #24) • Investment strategy materials (#25 and #26) • All materials except funding levels and targets provided to consultant team
Dec 15, 2013	<ul style="list-style-type: none"> • Funding levels (from planning and budgeting process, #8) • Targets (from planning and budgeting process, #8)
Dec 31, 2013	<ul style="list-style-type: none"> • Complete draft TAMP
May 22, 2014	<ul style="list-style-type: none"> • Final TAMP

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May 2013
