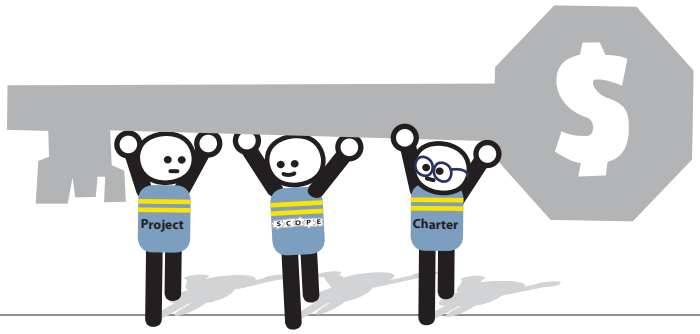
MARCH 2010

OREGON DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION



Practical Design Guidebook

ODOT Highway Division

Acknowledgement:

THANK YOU to the many staff who contributed to the development of the ODOT Practical Design Strategy. Some shepherded its overall development. Others crafted the text or critiqued the document through its many iterations. Still others served as a sounding board and cheering section throughout the development process.

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Document Date : March 1, 2010

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TRANSMITTAL

March, 2010

TO: ODOT Highway Division Staff and External Business Partners

We are pleased to provide you with the following information about Practical Design, a strategy to deliver focused benefits for the State's transportation system while working with the realities of a fiscally constrained funding environment.

For years, we have designed and delivered our transportation program while facing the travel demands of an increasing population and an aging infrastructure. We have stretched scarce resources and introduced improvements to our business model, including (but not limited to):

- working with our business and regulatory partners to "package" projects so that a single permit process can apply to multiple projects
- identifying project categories where only one or a few aspects are considered (not the entirety of the geometrics and appurtenances)
- designing and implementing templates and checklists to ensure consistency in practice and performance, and
- extensive use of exceptions to design standards when safety and mobility can be achieved with design of individual elements deviating from typical standards

With this history of continuous improvement, much of what you'll read on the following pages will seem familiar. It should be. But, what is new about Practical Design is that ***it pulls all of the concepts and values we currently apply to our work into a defined, repeatable strategy with defined feedbacks that will aid in refining and improving the strategy.***

Although it is not a "silver bullet," Practical Design **is** the next logical step for ODOT. It allows us to deliver the broadest benefits to the transportation system, within existing resources, by establishing appropriate project scopes to deliver specific results. It provides flexible parameters so that design teams can be confident that a particular solution is sufficient to improve the transportation system as a whole.

Practical Design is **good public stewardship.** And, its processes and practices are being incorporated as an integral part of the Highway Division policy environment. Our efforts in this area are supported by the Oregon State Legislature, which, in May 2009, passed HB 2001 – the Jobs and Transportation Act. This bill was subsequently signed into law by Governor Kulongoski. The new law directs ODOT (in part) to implement "transportation design practices that follow the concept of practical design."

Practical Design helps ODOT to provide the **Right Projects**…at the **Right Time**…at the **Right Cost**…and in the **Right Way**.

Doug Tindall, Deputy Director
ODOT Highway Division

Cathy Nelson, Technical Services Manager/
Chief Engineer–ODOT

P.S. For an electronic copy of this strategy, periodic updates, and/or for responses to questions from staff regarding Practical Design at ODOT, please visit the Highway Division Practical Design site at:
http://transnet.oregon.gov/ODOTINTRA/HWY/TECHSERV/practical_design.shtml

I. Philosophy

A. Why practical design – now…

As the transportation infrastructure ages and demands to move people and freight increase, jurisdictions everywhere are recognizing the need to stretch scarce dollar resources to address as many needs on the system as possible. No longer can we afford the perfect or near perfect solution. Rather, projects have to deliver some benefits within the money available, even if those benefits do not last for decades in the future.

Practical Design is a term applied to a strategy adopted by several states to reduce cost and still deliver focused benefits. Exactly how practical design is implemented varies by situation. At a minimum, we need to consider safety, economic development, communities if a project passes through them, the environment, the overall transportation system (not just highways) and cost.

For the past several years, ODOT has actively explored ways to more effectively deliver projects under fiscal constraints while concurrently meeting stakeholder expectations — key tenets of the Practical Design concept. Two examples of note are:

- Special Transportation Areas – an effort to better address the community context in a downtown core together with the overall transportation needs.
- The 1R Paving Program – repackaging the pavement preservation program to separate the paving and safety priorities, ensuring statewide system priorities are met for both.

The following strategy for Practical Design at ODOT provides a foundation for thought and processes to achieve more focused improvements at a lower cost, even if those improvements are not as long lived as traditional ODOT highway improvements. Practical Design is an extension of where we, as an Agency, have been heading in our approach to program and project development and delivery. Practical Design merely provides a platform to be more deliberative in our efforts to provide **the Right Projects, at the Right Time, at the Right Cost, and in the Right way.**

B. Our Approach

For years, the Highway Division has been designing under fiscal constraints – actively seeking opportunities to achieve lower cost improvements and improve the overall transportation system by stretching available funds and fully utilizing available resources. We have worked with our business partners (i.e., Federal Highway Administration) and regulatory agencies (i.e., Oregon Department of Fish and Wildlife) to identify ways to package business practices/processes. We have reduced wait times for approvals while assuring no reduction in the quality of oversight. We have designed and implemented templates/checklists to ensure consistency in practice/performance where needed, and developed technical guidance that defines major design considerations leading to desired end products and outcomes. Practical Design is the next logical step as ODOT continually refines its design and delivery processes/practices. It reinforces **good public stewardship.** And, its processes and practices as outlined in this document are an integral part of the Highway Division policy environment.

Practical Design is not a silver bullet. It is a way to provide flexible parameters so that design teams can be confident that a particular solution is sufficient to improve the transportation system, without being excessive. In short, Practical Design is a way to let engineers engineer.

Practical Design does not, as some may fear, throw out engineering guidance and/or standards. Rather, flexibility in design typically requires more information and a higher level of analysis when defining and deciding on the most appropriate design value for a particular location. It requires maintaining focus on the project's purpose and need and a clear process for approving and documenting the rationale for important decisions. It requires good use of engineering judgment to assess the severity of adverse consequences, evaluate design tradeoffs, and to mitigate risks to the extent practical.

Practical Design does not mean all projects will become single function projects. They will still be guided by regulations and requirements established for the facility type, project type, and funding source.

Q: *What's different with ODOT's Practical Design effort?*

A: *Our emphasis on* ***doing just what's needed for specific results.***

Our emphasis on making the ***whole system*** *better, while* ***stretching our funding*** *so that it goes further.*

Our ***decision-making toolkit*** *- which helps us achieve our goals and live our values when making system improvements.*

Our ***emphasis on utilizing different perspectives and having all available information about a project, early in the process,*** *to frame up appropriate problem statements and cost-conscientious solutions.*

Practical design in Oregon takes a systematic approach to deliver the broadest benefits to the transportation system, within existing resources, by establishing appropriate project scopes, to deliver specific results.

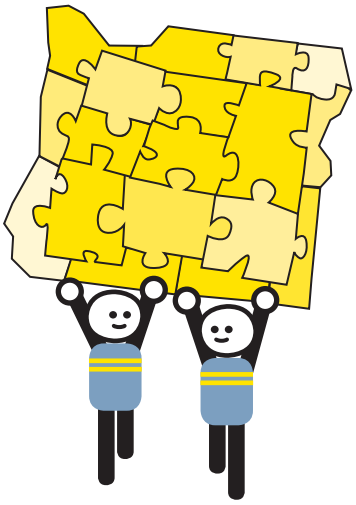
By taking a more systematic approach, we will put projects in a system context. This will require thinking about the transportation system as a whole, rather than just on a project by project basis. Applied to a corridor for instance, there would be little point in having one section of the corridor wide and straight when the rest of the corridor will never be anything but narrow and curvy and twisting. **The system context will shape the design.**

Results must be tangible to the traveling public. Simply meeting current standards is not itself a tangible result that the public will recognize. Results expressed in terms of improvements to safety, mobility, asset condition, modal choice, livability, economic growth and the environment are tangible to the public. As we describe what a project will be in order to achieve an improvement, we can open the discussion to the benefit achieved for the cost involved.

ODOT's Practical Design, approach continues using multi-discipline project teams. Collaboration between members contributes to a broader evaluation of data and measures of success, and ensures that community interests are considered. The different perspectives brought by the team to a problem or solution helps with the evaluation of assumptions and constraints. Through the internal and external partnerships developed on multi-discipline teams, issues can be anticipated and worked, reducing the need for escalation to achieve resolution. For example, by utilizing local (stakeholder) partnerships, such items as off-system improvements and alternatives not located within the right-of-way can be implemented more easily.

Design teams have to get to project details at some point, and can't spend all of their time thinking about the system or even a corridor overall. However, when applying Practical Design concepts to their individual projects, awareness and understanding of past system and corridor work must be taken into consideration by the team when framing appropriate solutions. ODOT's success with Practical Design relies heavily on ensuring that design teams have better and sufficient information to frame up solutions for individual projects that are aligned with corridor/system usage. We have identified three key elements to help us understand whether we are achieving this goal:

1. Better problem descriptions and purpose and need statements;
2. The availability of information to the design team about the vision for the overall corridor; and
3. Demonstrated confidence by the design teams that it is OK to do something different when making project decisions.



II. Focus

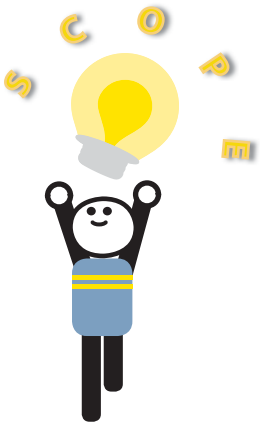
A. ODOT's Mission

All transportation programs and projects must be supportive of the overall Agency mission: ***To provide a safe, efficient transportation system that supports economic opportunity and livable communities for Oregonians.***

The primary values associated with Practical Design are compatible with ODOT's Mission, and assist decision-makers to fulfill their stewardship role in managing the state's transportation infrastructure.

B. Practical Design Values

ODOT has had past success when applying values based filters (i.e., P.L.U.S. Ethics Model) to guide our work-related decisions. We typically embrace these filters and integrate them into both complex and simple deliberations. We want to achieve a similar level of recognition and integration with the five key values associated with Practical Design.



Our acronym for these values is **S C O P E**
Each **S C O P E** value is supported by a number of tools/aids currently available to designers and project teams. The values and sample supporting tools/aids follow.

Safety[1]

Overall system safety will not be compromised. Our goal is to make the system as safe as practical. This does not mean that we are settling for a lower level of safety. It does mean that we will continually make choices about safety and use sound engineering judgment when making safety decisions (i.e., look for high value add-ins with minimal cost). Individual projects may look different. But, every project will either make the facility safer or will maintain the existing safety level for that facility. No individual project will degrade the overall system safety.

[1] This approach is in line with current AASHTO Roadside Design guidance that states: "The purpose of this Guide is to present the concepts of roadside safety to the designer in such a way that the most practical, appropriate, and beneficial roadside design can be accomplished for each project" - 2002 FHWA Roadside Design Guide.

Corridor Context

In Practical Design we take the concept across a system, down to a corridor level, and apply it to each project. A corridor approach should be used in establishing or evaluating design criteria, and then be applied consistently throughout the corridor. Roadways should respect the character of the community, and include the current and planned land uses. We must strive to understand and work within the intended corridor use. We consider the unique features of the project and how this "fix" fits with other parts of the corridor and with the natural and built environment surrounding it.

Optimize the System

Adopting more of an asset management approach to managing pavements, bridges and roadway safety features allows us to assess the current state of an individual infrastructure asset, and then to develop specific maintenance, repair, rehabilitation and replacement strategies that optimize the life-cycle investment in that particular asset. This, in turn, can allow available funding to be allocated on a priority basis to those assets and/or combination of assets that ensure that the entire highway system is optimized for safety, mobility and financial investment.

Public Support

We recognize that public trust is a cornerstone of success. We work in partnership with the local communities and want system improvements to be visible to the traveling public. We provide opportunities for the community to shape the chosen solution, and we consider needs for pedestrians, bicyclists, transit users, freight and mobility. When working with community interests, it is essential to have clarity about the project purpose, need and alignment of the proposed project with the overall plan for Oregon's transportation system.

Efficient Cost

We have limited funds to apply to our projects and we strive to stretch these funds as much as we can. We strive to develop projects that meet the desired purpose, but are open to considering incremental improvements. Practical Design requires applying the appropriate standards to the critical elements in order to meet the project specific purpose and need. This allows for a redistribution of funds that were previously used on other items that may not have been as high of a priority on one project, to be used where they will produce the most benefit to the system. **Practical Design stresses making the best strategic decisions that benefit the overall system.**

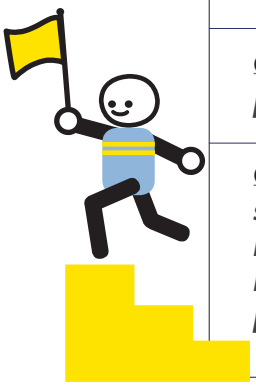
C. Overarching Goals

Three overarching goals guide our application of Practical Design at ODOT.

Goal #1 - Direct available dollars toward activities and projects that optimize the highway system as a whole.
Direction for ODOT's Transportation Program is provided by the Oregon Transportation Commission (OTC) and brought into Highway Division through a number of long and short-range transportation planning documents and activities (i.e., Transportation Planning Goals, Oregon Transportation Plan, Oregon Highway Plan). From this "big picture" planning the general size, scope, features, and funding of the Division's highway program are outlined. This information, in turn, becomes foundational elements when defining the Statewide Transportation Investment Program (STIP).

Goal # 2 - Develop solutions to address the purpose and need identified for each project.
Potential projects for inclusion in the STIP must track back to the earlier direction setting, system planning and program-level STIP. Project Teams should ensure that individual projects are in alignment with the overall direction for both the Agency and the transportation system. For example, in some cases the purpose or intent of a project may be different from the desires of some stakeholders, such as lighting and street furniture on a paving project. In these cases, opportunities for accommodating the request or seeking additional funding may be an option, but the purpose and need and primary goals must be used to keep the project on task.

Goal # 3 - Design projects that make the system better, address changing needs, and/or maintain current functionality by meeting, but not necessarily exceeding, the defined project purpose and need and project goals.
Past practices at ODOT have, most often, focused on bringing roadway sections within a project limit "up to standards" based on the funding, facility type and type of project. This method of project delivery was considered to be an effective way of maintaining, rehabilitating and modernizing the system to match its present use, meet changing needs, and/or maintain its current functionality. Today, success requires **balancing** this traditional focus with the project's contribution to the system by addressing problems on a priority basis within the project context.



Goal #1 - ***Direct available dollars toward activities and projects that optimize the Highway system as a whole.***

Goal # 2 - ***Develop solutions to address the purpose and need identified for each project.***

Goal # 3 - ***Design projects that make the system better, address changing needs, and/or maintain current functionality by meeting, but not necessarily exceeding, the defined project purpose and need and project goals.***

Integrating the above values and goals into ODOT's transportation designs and projects presents a fundamental challenge***...to ensure consistency between the overall transportation program purpose and the purpose and need of individual projects being designed.*** When selecting projects, decision-makers must not only look at their individual merits but also at several new filters – **cost efficiency and the project's ability to contribute to what we are trying to achieve for the overall system.** The appropriate project scope and scale will emerge from this analysis.

The following questions are offered to help stimulate discussion among project leaders, designers, and other decision-makers as they collect information to help integrate the ODOT mission, Practical Design values and goals, with the program/project purpose and need.

S C O P E Integration Questions:

- *Does this project address the purpose and need?*
  Does it meet the project goals?
- *Is the improvement or benefit worth the cost?*
  Is this improvement or benefit too expensive or a throw away?
- *Is the solution better than current conditions?*
  Is doing something better than doing nothing? (consider the opportunity cost to the system)
- *What are the design priorities?*
- *Does it meet the corridor/system context?*
  Does it meet the project context?
- *Are we meeting the expectations of the stakeholders?*
- *Is this project consistent with ODOT mission, goals and policies?*
- *Have we analyzed alternatives and conducted value engineering?*
- *What are the constraints – physical, fiscal, environmental, schedule?*
- *Is there a feedback loop for continuous improvement?*
- *What has changed from the original concept and scope?*
  Are original assumptions still valid?

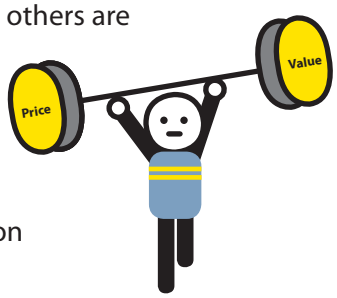
EXAMPLE:

To illustrate how the S C O P E values can be applied to an actual project, the following is offered. We have selected a recent ODOT project in Maupin: **"US 197: Burnham Ave-Third Street (Maupin)"** for your consideration. The purpose and need for this project were defined as:

Purpose and Need

Purpose: Provide a construction project that will enhance the functionality, appearance, livability, and economic prosperity of Maupin through the reconstruction of four city blocks of the main street. Reconstruction will also provide a repair of pavement conditions and an upgrade of storm, sanitary, and water systems, and provide a safer roadway for pedestrians by the installation of main street and traffic calming features, while incorporating access management strategies and maintaining freight mobility.

Need: Tourism in Maupin related to recreational activities on the Deschutes River continues to increase. Deteriorating sidewalks and unmarked crosswalks along Deschutes Avenue (US197 through town) are uninviting and unsafe for pedestrians. Curb reveal varies greatly where the sidewalks meet the street; some sections have no reveal while others are high enough to obstruct car doors when parked adjacent to the sidewalk. Due to the cross slope of the roadway, the grade through town and the need to match door fronts at the local businesses, the curb reveal varies greatly where the sidewalks meet the street. The ODOT 2006 Pavement Condition Rating for US197 through Maupin was Poor.



Side 1: Offers sample S C O P E values questions to aid designers and project teams as they consider how their specific project connects to the overall transportation program purpose. These sample questions have been developed to increase "rigor" when integrating S C O P E values on individual projects. It is not intended that each Project Team will answer each and every question for each and every project. Rather, they are offered as sample/starter questions for Project Teams to help focus on what ODOT actually wants to fix on this particular portion of the system in order to achieve specific results. Project Teams can select from these sample questions or develop their own questions, tailored to their individual project. However, even when a Project Team elects to customize its decision making questions, documentation of decisions related to the S C O P E values is expected on all projects.

Side 2: Illustrates how the Practical Design S C O P E values were addressed on the Maupin Project.

SCOPE Values Questions

Safety

- Will project maintain or improve safety?
- Are there any effective low-cost measures that can improve safety?
- Has a crash analysis been done to confirm improvement addressing the primary safety problems that are being experienced?

Corridor Context

- What is the purpose of the corridor and/or nature of the community?
- How is area currently used for alternative travel? (bus, pedestrian, bike, rail, etc.)
- What is the design speed for this segment of the corridor?
- Is the solution in harmony with the rest of the corridor or future plans for the corridor?
- What can be done with this project to reduce/simplify future projects/plans in the same corridor?

Decision Matrix

Optimize the System

- What is the problem?
- What are the possible solutions and do they effectively solve the problem?
- Will the project be maintainable and buildable?
- Does the solution optimize the infrastructure life-cycle cost?
- Does the solution provide an operational improvement?
- Does the solution improve connectivity and coordination with other systems?
- Can we design a system that can be flexible for future expansion?
- Is a construction project the right solution (vs. enforcement, education, etc)?

Public Support

- Who are all the stakeholders?
- Has community input been considered?
- How will decisions be communicated after gathering public input?
- Do we ourselves have a good understanding of the problem?
- Is the problem clearly documented?
- Do the stakeholders understand and agree with the problem?
- How do stakeholders define success?
- What kind of support exists from city/ local jurisdictions and primary users of the facility?
- Has "minimum expected value" been met?

Efficient Costs

- Can any elements of the project be eliminated, phased or separated to a more appropriate project and still address the problem?
- Have we identified the alternatives and the cost/ benefit (value) of each in relation to risk?
- What is the return on the investment (quantifying time, money, economic growth, etc.)?
- What is the lifespan of the solution?
- What are the future maintenance/ops costs?
- Is there minimal re-work for future projects/ needs?
- What is the minimum fix, and what would trigger a larger, more expensive fix?

SCOPE Values Results

Document Decisions Made

Safety

- Provided bulb-outs for pedestrian crossing
- Improved sidewalks
- Constructed new curb and gutter with buffer strips
- Potential to improve the overall system safety

Corridor Context

- Applied appropriate design criteria [Special Transportation Area (STA) guidelines]
- Maintained access to businesses during construction
- Accommodated freight movements heavily used by trucking industry
- Enhanced appearance, strive for improved City livability and economic prosperity

Optimize the System

- Provided adequate pavement surface and drainage facilities
- Upgraded City water and sanitary sewer systems
- Incorporated an Access Management Strategy

Public Support

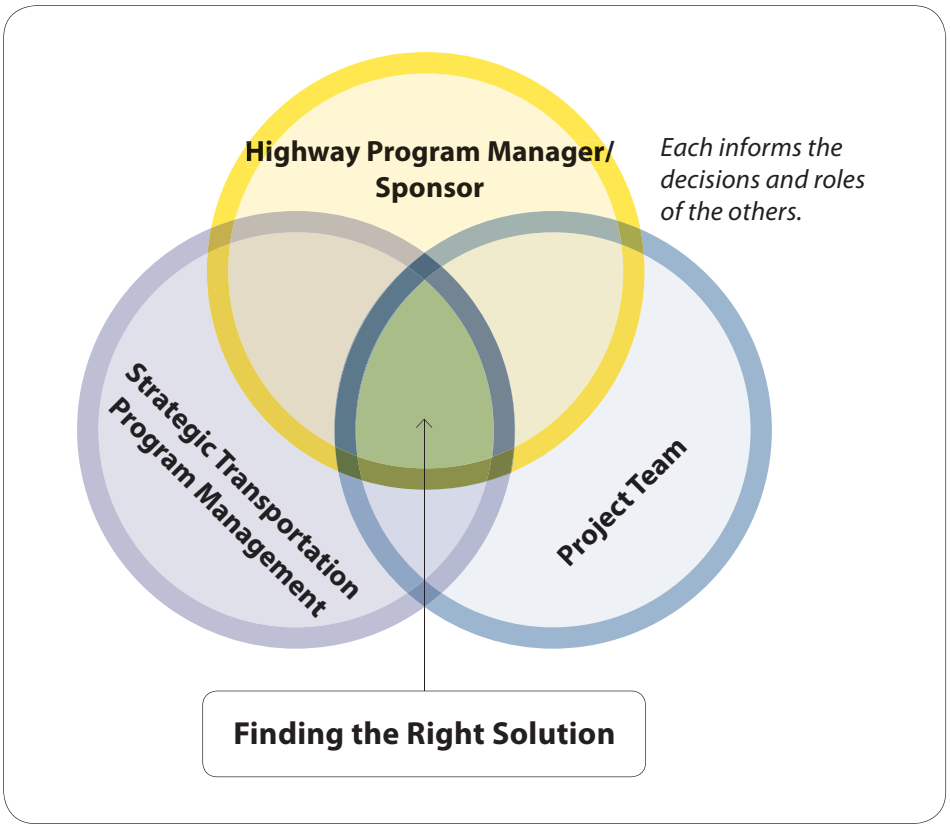
- Coordinated with multiple stakeholders
  - *City*
  - *ODOT (Design, Construction, Maintenance)*
  - *Freight and business communities*
- Informed consent among internal and external stakeholders
- Established expectations for involvement, communication, and decision making
- Communicated decisions in timely manner

Efficient Costs

- Project stayed within and met purpose and need
- Maximized multiple funding sources
  - *Bicycle/Pedestrian funds*
  - *Transportation Enhancement funds*
  - *Immediate Opportunity funds*
  - *Preservation funds*
  - *City funds*

III. Roles & Responsibilities of Primary Decision Makers

ODOT's approach to Practical Design involves three main levels of decision makers: Strategic Transportation Program management, Highway Program Managers/Sponsors, and ODOT Project Teams.



Each informs the decisions and roles of the others.

A. Strategic Transportation Program Management

The Oregon Transportation Commission (OTC) establishes investment strategies and Highway Program targets for Oregon's multimodal transportation system through various short and long range planning documents. These strategic level managers generally:

- Review documents developed by ODOT's Transportation Development (Planning) Division;
- Approve projects for inclusion in the Statewide Transportation Improvement Program, (STIP);
- Review and approve state highway classifications; review and approve facility planning documents.

B. Highway Program Managers/Sponsors

Program Managers/Sponsors (i.e., Region Manager, Area Manager, Program Manager) perform a critical role during early project development. Generally, these managers:

- Define how the project meets the program purpose & need and objectives;
- Clarify general funding expectations (funding range, do-not-exceed values, etc);
- Set the tone/parameters for the program and project, including providing clarity around core fixed or flexible project parameters that are linked to the overall program;
- Ensure that the **S C O P E** values are incorporated into the decision making for each individual project's scope and scale;
- Ensure appropriate documentation of decisions;
- Provide an approval level signature for the Project Charter;
- Inform project teams on higher-level decisions made and confirm that individual projects are in alignment with overall direction for both the Agency and transportation system.

C. Project Teams

These multi-disciplinary teams use information and direction provided by Program Managers/Sponsors to make project decisions and choose solutions.

- Evaluate projects for viability, given program parameters, funding, and schedule;
- Define the project level purpose and need;
- Identify criteria to evaluate project scope and incorporate design elements that address the overall project strategy;
- Document decision making related to the project design and development.

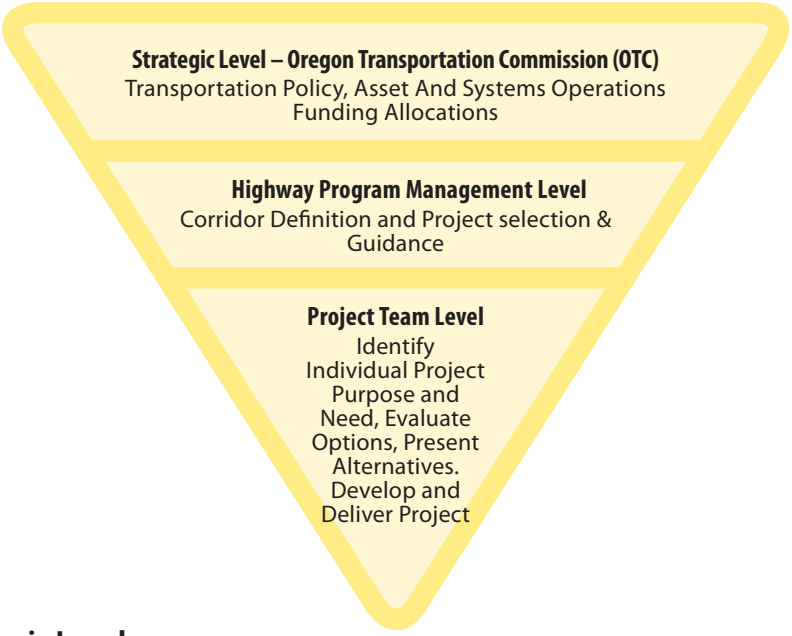
A number of experts "weigh-in" to inform the project team's decisions and recommendations. The following provides a high level overview of roles played by two critical team members, the project leader and the designer, during project development and early project delivery.

- **Project Leader: Facilitates project team discussion and documents final decisions to determine:**
  - At what point is the design good enough/sufficient?
  - How to maintain the right balance for the overall project/system when doing trade-offs around decisions;
  - That decisions are being integrated appropriately and fulfill the project goals/purpose/need.

- **Designer: Provides awareness of how his/her individual discipline contributes to the total project.** The designer must:
  - Be a participant in developing a project solution when discussing **S C O P E** values integration topics for an individual project;
  - Be alert to shifts in the original assumptions/parameters of the project;
  - Call the project team's attention to significant shifts that may impact the overall balance between different elements of the project and the project cost and/or schedule.

NOTE: Coming to a satisfactory resolution/solution on critical project elements may be difficult. Team members are inclined to see and weigh problems and potential solutions through the lens of their discipline or orientation. Further complicating decision-making is the fact that similar elements can be weighed differently on different projects. So, reaching agreement on specific issues may not be simple. It may require considerable negotiation, flexibility, diplomacy and tact to reach a satisfactory resolution. We believe that full participation allows the team to be successful. ***Full participation by all team members enriches the decision-making process and leads to more balanced, integrated solutions*** *– aligned with the values and goals associated with ODOT's Practical Design efforts. We urge all team members to listen well and be flexible in their negotiations with others to find and develop viable solutions.*

EXAMPLE: To illustrate the multi-level input that shapes project decision-making, consider the following:



Strategic Level

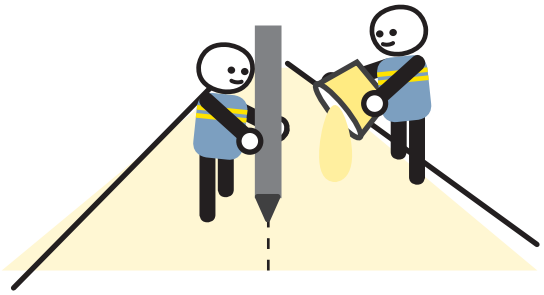
The OTC allocates funding for the purpose of improving safety by reducing crashes, preserving the system, and making efficient investments for high risk conditions on the highway system.

Highway Program Management Level

Highway Program management identifies that there is a consistently high correlation between run-off-the-road crashes and fatalities on most rural segments of the highway system. The Highway program manager identifies a specific segment in the system that is experiencing this type of condition, and directs a project team to identify a potential solution to address this problem (i.e., A program level purpose and need may be to improve safety in rural areas, while maintaining operations.)

Project Team Level

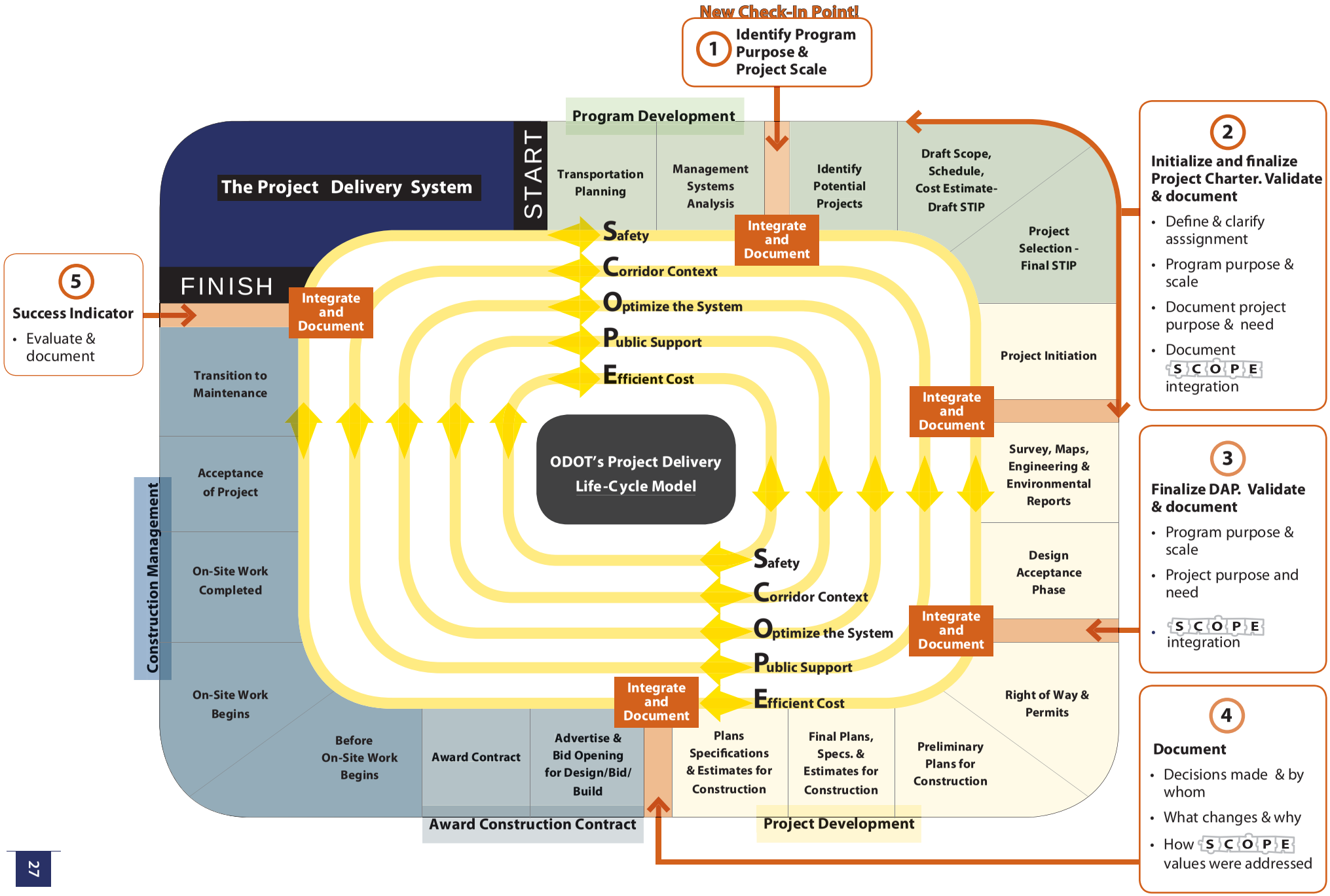
The project team develops a project purpose and need for the project identified by the program manager. They identify possible solutions to address the problem. An example of a project purpose & need could be to reduce the number of high severity crashes in a specified rural area. Among a range of solutions (shoulder widening, slope flattening, curve corrections, etc.), the team discovers that the most practical and cost-effective way to address the project purpose and need is to reduce the likelihood of vehicles running-off-the-road by investing strategically in a combination of effective markings, permanent striping, and rumble strips. The most effective method to deliver this project may be a stand-alone project, a system-wide contract, or to include the work in a pavement preservation project.



IV. Integrating Practical Design and Project Delivery

A. ODOT's Project Delivery Life-Cycle – Critical Decision Points

Validating and defining conversations can (and should) occur at any point in the project delivery life-cycle. However, to ensure project team alignment with overall Highway Program direction, certain critical conversations and activities must occur early in the project life-cycle. A high level overview of **ODOT's Project Delivery Life-Cycle model** is offered on the next page. This model illustrates key Practical Design **decision points** for maximum benefit to an individual project's "bottom line" success.


New Check-In Point!
1 Identify Program Purpose & Project Scale
The Project Delivery System
START
FINISH
Program Development
Transportation Planning
Management Systems Analysis
Identify Potential Projects
Draft Scope, Schedule, Cost Estimate- Draft STIP
Project Selection - Final STIP
Project Initiation
Survey, Maps, Engineering & Environmental Reports
Design Acceptance Phase
Right of Way & Permits
Preliminary Plans for Construction
Final Plans, Specs. & Estimates for Construction
Plans Specifications & Estimates for Construction
Advertise & Bid Opening for Design/Bid/ Build
Award Contract
Before On-Site Work Begins
On-Site Work Begins
On-Site Work Completed
Acceptance of Project
Transition to Maintenance
Construction Management
Award Construction Contract
Project Development
Integrate and Document
Safety
Corridor Context
Optimize the System
Public Support
Efficient Cost
ODOT's Project Delivery Life-Cycle Model
2 Initialize and finalize Project Charter. Validate & document
• Define & clarify asssignment
• Program purpose & scale
• Document project purpose & need
• Document SCOPE integration
3 Finalize DAP. Validate & document
• Program purpose & scale
• Project purpose and need
• SCOPE integration
4 Document
• Decisions made & by whom
• What changes & why
• How SCOPE values were addressed
5 Success Indicator
• Evaluate & document

Rather than provide a "cookie-cutter" approach or "how to" direction, Practical Design principles reinforce the fact that there is no substitute for sound engineering judgment and informed decisions that ensure appropriate alignment between individual projects and overall Highway Program direction. With this in mind, **five check-in/decision points** are emphasized during the overall Project Delivery Life-cycle.

1. A **Program level** check toward the end of the Management System Analysis and prior to Project Selection-Final STIP, to confirm program purpose and general project scale.

2. An on-going program and project decision process begins at planning/scoping and leads up to a **Project level** check at the end of Project Initiation, just prior to Design Acceptance.

3. A **Program and Project level** check at DAP to validate and document program purpose, general project scale, project purpose and need, and **S C O P E** integration.

4. A final **Program and Project level** check at PS&E as part of the transition from project development to construction to communicate and document decisions made.

5. An **overall Project level** check once construction is completed and the project is transitioning to Maintenance. This check in is to evaluate and document results. This is a quality assurance/ continuous improvement check that is tied to the success indicators for this particular project (See Section V for high level overview of Success Indicators).

As mentioned previously, clarifying conversations can and should occur throughout the project life-cycle. As part of these conversations it is critical to have a clear understanding of why the project is needed, and how the solution addresses that need. The following items are essential in sound decision-making:

a. **Understanding the problem and the context before programming a solution for it;** The purpose of the investment must be defined by project stakeholders from the beginning. Sufficient information must be gathered to understand the problem and its context, issues and opportunities, and potential solutions and estimated cost.

b. **Clarity of Purpose and Need;** Clarity allows prioritization of project elements to meet the project's intent or to address the specific need(s) identified. Ultimately, clarity informs what's critical to fix – without going beyond the needs of the project.

c. **Establishing Goals and Objectives;** Goals and objectives set the desired expectation for the project and are intended to direct the decision-making process during project development. Goals are intended to be the main driver for evaluating the solution. Objectives give further direction and clarification for the desired outcomes of the project.

d. **Employing a Multi-discipline Project Team;** Multi-disciplinary teams contribute to a broader evaluation of data and measures of success. They ensure that not only technical, construction, and maintenance issues are factored into decision-making, but also that the community's vision is included. Multi-disciplinary teams afford increased opportunities to exercise the use of design flexibility during the project development process. Flexibility should be tempered with sound engineering judgment and consideration of the purpose and need for the project.

B. Practical Design Decision Model Integration

ODOT has a well established history of being a champion for continuous improvement. We have come a long way along the path to incorporating practical design principles into our current business practices. To aid decision makers when integrating practical design, two new tools are offered: **The Practical Design Decision Model and the Project Charter.**

These tools formalize and systematize actions that many already incorporate into their program and project development evaluations, alternative selection activities, and deliberations. The tools are designed to increase clarity about project parameters and other critical elements when "handing off" work from the Program Manager/Sponsor to the project team for implementation.

1. Decision Matrix

Practical Design Decision Filter Process: Program and Project Delivery

Key Project Delivery Milestones/ Decision Points

	1 Planning/Scoping	2 Project Initiation	3 Design Acceptance	4 Advanced Plans –PS&E
Roles & Responsibilities	■ Good understanding of the problem and corridor context ■ High level clarity of Purpose & Need • Program Purpose • Project Purpose • Project Scale • Establish project goals and objectives • Sponsor buy-off	■ Refine Purpose & Need • Right project given system needs • Project Purpose • Project Scale • Sponsor buy-off	■ Purpose & Need clearly defined & solution selected	■ Continued review/ check-in for for doing the **Right Project, at the Right Time, at the Right Cost, and in the Right Way** ■ Success Indicator – Did we meet the original purpose and need? What changed and why?
Key Decision Documentation Tools	■ Project Prospectus (PD-02) ■ Project Charter draft initiated ■ Planning/scoping documents • STIP Criteria Summary Reports (under development) ■ Draft Design Criteria (PD-02)	■ Design Criteria finalized ■ Project Charter finalized & signed ■ Public Involvement Plan (PD-12)	■ DAP checklist & signature memo complete (PD-02)	■ Change Management (as needed) (PD-02) ■ Project Development Close-out
Decision Points/ Process	■ Program Managers communicate purpose of program to Region Managers ■ Region Managers or Area Managers communicate to Region PDT purpose as applied to project ■ Depending on project size and complexity, Scoping/ Project Teams define parameters and draft Project Charter	■ Project Team defines project elements	■ Project Team answers integration and decision questions (See page 20-21) ■ Project Team completes DAP documents for signature, acknowledging all questions answered ■ Technical Center Manager and Area Manager review and approve decisions made ■ Area Manager and Program Manager must approve any changes outside of program purpose, need and scale	■ Project Teams initiate change management as needed - follow region approval processes ■ AM and Program Manager approve any changes outside of program purpose, need and scale

5 **Success Indicators & Documentation.** This is a quality assurance/continuous improvement check that is ongoing through construction. Is what we're building sustainable and maintainable?

2. Documenting Decisions Made

When documenting decisions, project teams are urged to use the Design Acceptance Checklist and Certification of Design Acceptance Memo to memorialize their decisions. The following link directs the reader to the Project Delivery site where guidance and tools (i.e., PD-02 Deliverables and References) are housed. This link provides a full range of tools to support project leaders as they initiate and document their projects.
http://www.oregon.gov/ODOT/HWY/PDU/pd02_deliverables_refs.shtml

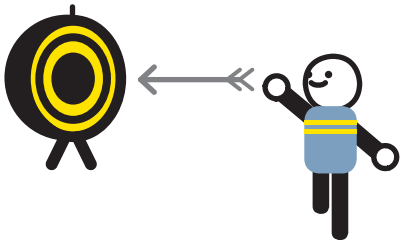
A number of tools are available to support designers as they develop and refine their designs. Please see Appendix A for links to Corridor Plans, the Oregon and Regional Transportation Plans, Transportation System Plans, and other guiding documents to aid designers when applying Practical Design during Program and Project Development. The FACS-STIP Tool can be used by scoping and project teams to access transportation data to enhance understanding of the corridor context, existing infrastructure and key design elements.

The importance of integrating the ODOT mission and Practical Design values and goals with an individual project's purpose and need can't be stressed too much. To provide additional emphasis…sample questions to help multi-disciplinary teams consider each specific project's integration thoughtfully are reiterated below.

- *Does this project address the purpose and need? Does it meet the project goals?*
- *Is the improvement or benefit worth the cost? Is this improvement or benefit too expensive, or a throw away?*
- *Is the solution better than the current conditions? Is doing something better than doing nothing? (consider the opportunity cost to the system)*
- *What are the design priorities?*
- *Does it meet the corridor/system context? Does it meet the project context?*
- *Are we meeting the expectations of the stakeholders?*
- *Is the project consistent with ODOT mission, goals and policies?*
- *Have we analyzed alternatives and conducted value engineering?*
- *What are the constraints – physical, fiscal, environmental, schedule?*
- *Is there a feedback loop for continuous improvement?*
- *What has changed from the original concept and scope? Are original assumptions still valid?*

ODOT's Practical Design approach requires a greater degree of engineering judgment, therefore project teams must thoroughly document their decisions in order to:

- memorialize the team's decision-making, including alternatives considered and conclusions reached;
- demonstrate that sufficient attention is applied to balancing the core **S C O P E** values;
- show that sufficient analysis has been conducted to support choices/options selected;
- indicate whether this "fix" is incremental, and if so,
  - What part of the need is met by this phase
  - The anticipated future work and timeframe (if known) to achieve the overall solution



The following guidance is offered to aid project teams when documenting their decisions. Guidance includes sample questions that will help demonstrate that the team has paid sufficient attention to the integration between the transportation program, their individual project, and the **S C O P E** values.

- Use brief but sufficient explanations; extensive explanations are not required.
- Documentation will rely primarily on narrative descriptions of anticipated effects, although data should be provided to support conclusions where such data are available.
- Yes or no without explanation is not an acceptable answer – except where yes or no is the only possible answer, i.e., " Is the project on a designated freight route?"
- If data or other documentation are available to support the explanation, cite or use it. For example, if travel model data are available that shows the impact of the proposed project, describe these results. Or, if a letter of commitment from another partner or investor or an intergovernmental agreement is in place, include these facts in the explanation.
- Intergovernmental and other agreements and/or conditions of approval should be included as project documentation, including relevant, anticipated benefits.

C. Project Charter

The Project Charter is a written narrative agreement which spells out the charge given to the project team and the responsibilities of all involved, providing a means to clarify all aspects and nuances of direction,

expectations, philosophies and decision-making on the project need, priorities, parameters, flexibilities, roles, accountability, etc. This is a critical tool because, with Practical Design, project teams will need clarity in what they're being assigned to do, including the ranges of absolutes or flexibilities they have in meeting the sponsors' needs and expectations.

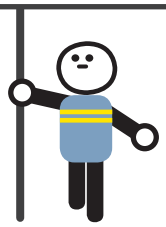
Project Charters should be less formal than a Prospectus or consultant contract, yet the format should be effective in providing a means for mutual alignment, support, and commitment between the project sponsors (i.e., Area Manager, District Manager, even external partners) and those assigned to deliver the project (e.g., Project Leader, Project Manager, Project Team, Technical Services). They are typically co-drafted and negotiated between the project sponsors and the person assigned to deliver the project. It's up to them to work together and decide how to get the Charter ready for signature. Discussions leading up to a signed Charter are invaluable.

The Project Charter should not be confused with any project team operating agreements, ground-rules, guidelines, protocols, or other written tools the team uses to help work together effectively and productively in delivering the assignment. The Project Charter basically lays the foundation for the project to be guided by, and is an excellent tool and resource. Charters:

- Give the green light for the project team to proceed as they see fit to get the work accomplished;
- Formally authorize the project and define and document the project purpose and need;
- Reinforce what to do, and when;
- Provide focus when identifying project purpose and need and objectives. They should be specific enough to provide accountability for decisions made;
- Provide minimum requirements – those critical four or five elements that are always present on a project;
- Tie together project purpose and need, objectives, and overall project performance measures and/or indicators of success.

See **Appendix B: Project Team Charter Content, Guidelines and Examples** for recommended information to include in a Project Charter and two sample completed Charters – one for a complex project and one for a more routine (simple) project.

WHEN TO USE: *Each Team should complete its Project Charter by the end of the project initiation milestone (See check-in point* **2** *on the Project Delivery Life-Cycle chart.)*



V. Success Indicators

Practical Design is a strategy for focusing limited resources to optimize benefit to the transportation system. It requires an Agency approach, starting with planning and programming decisions focused on transportation system optimization and ending with individual projects that provide sustainable cost effective solutions to meeting system goals. To truly reap the benefits of Practical Design, the Agency as a whole must embrace the philosophy and incorporate the Project Charter and S C O P E integration tools and processes in all projects. Institutionalization of the strategy values and goals and systemization of decision-making in the development of projects is critical for success.

Transportation system performance measures such as bridge and pavement conditions, traffic fatalities, traffic delay are the ultimate indicators of successful management of the transportation system. Practical Design as a strategy is focused on optimizing benefit to the system and can and should enable improvements in system performance measures. However, available funding levels also play a critical role. Practical Design seeks to stretch limited resources as far as possible to best meet transportation system needs, to get the most bang from the buck, from a system perspective. Practical Design can reduce the impact of inadequate investment in transportation by maintaining current system performance with less funding, or by lessening it's decline.

Indicators of success will occur on three main levels:

1. **Institutionalization** of Practical Design approach, values and goals
2. **System Optimization** – within available funding
3. Delivering the **Right Projects** at the **Right Time** at the **Right Cost** in the **Right Way**

Institutionalization of Practical Design Philosophy, Values and Goals: Agency staff and external partners understand, value and use Practical Design concepts in their daily work. Success indicators include:

- Planning, Project Delivery and Maintenance staff trained in Practical Design;
- External communication and training for consultant and local agency partners;
- Projects have Project Charters;

- Projects have five new **S C O P E** integration and documentation tasks included in milestones;
- Interactive web site enables understanding and acceptance of Practical Design and provides a platform for evolvement and continuous improvement.

System Optimization within Available Funding

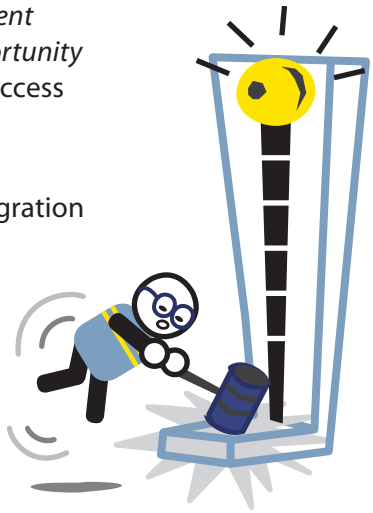
The goal of Practical Design is to ensure that every program, every project, every action, every dollar spent on the transportation system is focused on improving the system as a whole. System performance measures are fundamental to benchmarking the current state of the system, identifying system goals and measuring progress in improving the system. The following ODOT Key Performance Measures (KPM) are currently being collected and reported on an annual basis.

KPM #1	**Traffic Fatalities**	*Per 100 million vehicle miles traveled*
KPM #11	**Travel Delay**	*Hours of travel delay per capita per year in urban areas*
KPM #15	**Pavement Condition**	*Percent of pavement lane miles rated "fair" or "better" out of total lane miles in state highway system*
KPM #16	**Bridge Condition**	*Percent of state highway bridges that are not deficient*

These measures will serve as key indicators of successful system investment and project development within available funding.

Delivering the Right Projects at the Right Time at the Right Cost in the Right Way

Institutionalization of Practical Design enables the agency to move to a more efficient, systematic decision-making model for the delivery of projects that best meet ODOT's mission…*to provide a safe efficient transportation system that supports economic opportunity and livable communities for Oregonians.* Project success indicators include:



Right Project

- Successfully addresses and documents integration of **S C O P E** values;
- Provides targeted system and/or corridor improvement;
- Purpose and Need is clear and has stakeholder consensus and accountability – all are documented in the Project Charter.

Right Time

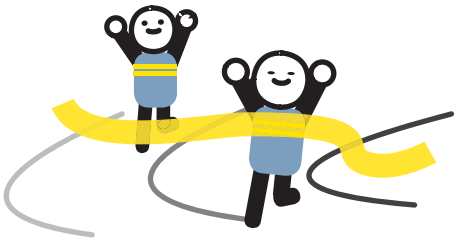
- Has stakeholder support (including funding and a focus on timely delivery).

Right Cost

- Least cost solution to address specific purpose and need;
- Incremental improvements for incremental investments when warranted by system benefit.

Right Way

- Minimizes mobility, environmental and stakeholder impacts;
- Minimizes rework;
- Risk conscious, value focused, context sensitive and outcome oriented.



VI. Future Improvement /Research

Inherent in the strategy of Practical Design is an emphasis on continuous improvement. The concepts and values within the strategy are not new. **What is new is pulling all of the concepts and values together into a defined, repeatable and accountable strategy.**

The development of tools and processes to support defining, documenting and delivering the right solutions will evolve over time. The Project Delivery Leadership Team (PDLT) and the Planning Business Leadership Team (PBLT) will need to provide active leadership roles to support project teams as they wrestle with how to address, integrate and document the key S C O P E values throughout the project delivery process.

As discussed earlier, ODOT has already developed several tools that will provide significant assistance in facilitating the implementation of Practical Design. Among these are Special Transportation Areas (STAs); the 1R Pavement Preservation Program; and public involvement plans, etc.

The Practical Design strategy introduces two additional tools:

- **Project Charters** to document the project purpose and need, and a
- **Decision Matrix** with the five key S C O P E integration and documentation milestones.

We recognize that the analysis, synthesis and ultimate integration of added project information is difficult, especially when striving to achieve the support of all project team members and stakeholders. To be successful, all team members must participate actively and be accountable in resolving project issues. This process will require more time at the beginning of a project. However, the documentation and accountability associated with the Project Charter and Decision Matrix as well as the efficiencies gained from current tools and those under development, should streamline the final design stages of the project, minimizing rework and surprises.

A number of other initiatives supportive of the Practical Design strategy are also being worked such as the:

- Newly released **Design Speed Tech Bulletin** – providing guidance on the use of design speeds which better reflect the corridor context by matching posted speeds, and
- The development of the **FACS-STIP Tool** to provide scoping teams with better transportation data to enhance their understanding of the corridor context and existing infrastructure and key design elements. This web-based application consists of two components: the MAP Tool application which provides GIS information over an aerial photo background and the Data To Go application which allows users to query and export asset/feature data by location. For further information about data currently available in the FACS-STIP Tool, please visit: ***http://www.oregon.gov/ODOT/TD/asset.mgmt/contact_us.shtml***

To validate the benefit of Practical Design in optimizing system investment, ODOT will introduce a research project one year after launching the Practical Design Strategy. The goal will be to evaluate how Practical Design has impacted the bottom-line in the development and delivery of projects and transportation system performance. We will

- Evaluate system performance measures before and after Practical Design implementation;
- Consider time and dollars spent in design, construction and maintenance;
- Gather information from the five check-in points in the Decision Matrix to determine the effectiveness of integration decisions throughout the project life-cycle;
- Quantify the benefit/cost where possible and look for opportunities to continue to improve. Again, the focus of the research project is to determine if Practical Design is making a difference.

In sum, Practical Design is an approach to effectively integrate **S C O P E** values in order to optimize system investments. For Practical Design to make a positive difference in the management of the transportation system, **S C O P E** values must be institutionalized, and tools and processes must evolve to support efficient and effective decision-making, with the focus always on delivering the Right Projects…at the Right Time…at the Right Cost… in the Right Way.

VII. Appendices

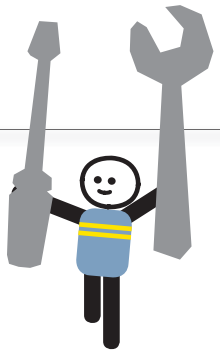
APPENDIX A

Applying Practical Design during Program and Project Development

To provide maximum benefit and utility, focusing on particular topics/issues/activities at specific points in the project delivery life-cycle can contribute significantly to the project's success. The decision points listed correspond to those shown on the Project Delivery Life-Cycle graphic.

Program Development (Corresponds to decision points 1 and 2 on the Project Delivery Chart)	**Tools to Assist and Inform Decision Making during Program Development**
1. When identifying initial projects • Confirm corridor purpose and the project within that context • Identify a problem statement and project purpose and need (or define the original intent of the project) • List the project goals and objectives • Define project parameters • Define general scope **2. When evaluating potential solutions** • Identify key issues • Develop and evaluate initial alternatives that address the project purpose and need • Project check-in 1. Identify recommended alternative or range of alternatives 2. Confirm general scope and scale of the proposed improvement • Ensure Sponsor Buy-Off	**Planning Documents (to identify corridor context and commitments)** • Corridor Plans • Oregon Transportation Plans • Oregon Highway Plans • Transportation System Plans • STIP Criteria Summary Reports(under development) • Interchange Area Management Plans • Refinement or other facility plans • Oregon Freight Plan • Prospectus Part V **Program (to identify program needs)** • Asset management - Management Systems ▫ Pavement Management System ▫ Bridge Management System ▫ Safety Management System (SPIS/SIP) • FACS-STIP Tool to access asset management information: ***http://intranet.odot.state.or.us/otms/*** Project Scoping Reports • Statewide Transportation Improvement Program (STIP) • Prospectus/PDWP, including Part V

Project Development (Corresponds to decision points 3 and 4 on the Project Delivery Chart)	**Tools to Assist and Inform Decision Making during Project Development**
• The scope and scale for the proposed improvement have been set. • Use the purpose & need and defined goals and objectives to direct the project decision making process. • Continue to document decisions made. • Check in with Program Manager/Sponsor through the delivery process to ensure the right project + right time + right cost + right way. • Individuals need to be cognizant when the discipline contributes to a shift in the original assumptions/parameters of the project. • The project team should work together to communicate and resolve changes to project assumptions based on additional information discovered during project development.	• Prospectus/PDWP • Project Charter • Practical Design Guidance • Design Criteria • Design Acceptance Memo, Checklist, and recommended deliverables • Project Development Change Requests • Design Exceptions • Transportation Management Plans (TMPs) • PS&E Submittal Checklist Items and deliverables • Tech Center and /or consultant QC Plans



APPENDIX B

Suggested Information For Project Charter Content & Guidelines and Examples:

Each Project Charter should include the following elements, at a minimum:

- **Charter** is assigned by: Sponsor(s)/Title(s), to: Project Leader/Project Manager (others names?)
- **Brief, general description of the Project Assignment**: What Project is being assigned, for example: route/name/location, milestone to achieve (Design Acceptance, PS&E, Construction completed….), work products, etc.

- **Problem Description**: A very clear/objective/complete description, in lay terms, of the problem or problems to solve; including why the problem is important to solve, how important it is to solve, and the relative urgency in getting it solved. It should be clear about why the assignment is important to the success of the ODOT's mission. This may take the form of a draft purpose & need statement used to guide the development and refinement of the project. A draft purpose & need should allow the project team the flexibility to develop solutions that effectively address the problem(s) identified. For the more complex projects such as modernization work with an EIS or EA requirement, the problem description may include the need to work with the public in arriving at a more formalized draft purpose & need statement, consistent with EIS or EA requirements, as an early deliverable.
- All or any **expectations and outcomes**: Expectations of the sponsor(s) go beyond the problems and needs, covering more subjective elements. Examples: a vision of what success looks like, priorities, must be included along with nice to have, known or potential risks (e.g., political) to manage effectively, stakeholder satisfaction, quality, life-cycle, aesthetics, etc.
- **All parameters (conditions, boundaries, constraints, design criteria) relevant to the effort:** Examples: deadlines or time constraints, cost/budget, environmental, study area limits, right-of-way limits, mobility, other individuals or groups which must be consulted, options or scope items which are "off the table" or "open for discussion", staffing and technical support limitations or commitments, etc.
- **Clearly described decision-making authority boundaries and flexibilities between the Sponsor(s) and the PL/PM/Team:** Should be aimed at reinforcing the importance of teamwork, excellence, innovation, and good judgment. This should also clarify in general when consultations should occur between the team and sponsors for certain decisions, communication protocols, issue escalation, other existing or needed agreements, etc.

- **Method by which the Sponsor(s) PL/PM/Team will communicate with and support each other:** Example, Sponsor(s) ensure PL success by working to obtain the resources needed to carry out the assignment, "…at this point the resources available to the team include…"
- **Perspectives and expectations on how to go about the work:** This should generally clarify tools and thought processes to use for team success. Examples: The sponsors may expect or require the use of specific checklists, public involvement plans, decision making matrices, scaling of the solution and design guidance to the problem, addressing local and system context and values, opportunities to simplify when appropriate, risk and change management, documentation and the importance of good explanations, optimizing value for both the project and the system, collaboration, etc.
- **Names, roles and responsibilities of all team members, management sponsors, etc.**
- **Signature Blocks:** The Area Manager is responsible for determining, in collaboration with the PL or PM, who should be involved in developing, reviewing, and signing the Project Charter. For example, the Area Manager determines who the co-sponsors are for signature, and allows the PL or PM to determine who else from the project team are for signature. Signature blocks should be preceded by a statement along these lines: *"In signing this Project Charter, we are committing ourselves to work corroboratively to accomplish the project assignment in support of the vision, mission, values and goals of DOT/Region/Other…."*

Each charter should also be supplemented by a Project Team Agreement. Created by the project team, such agreements provide the operating guidelines to support successful delivery on the Project Charter, such as: encouraged group behaviors and norms; meeting frequency; conflict strategies; and roles of the team. Working through this will help the team address problems in advance. Agreements should address the following questions the team members should be asking themselves as they form and interact:

1. *Are we good at decision-making (what decision-making processes will be used, e.g., consulting, voting, consensus, PLUS)?*
2. *Do we understand and agree with authorities, roles, responsibilities, and expectations?*
3. *Do we do a good job documenting who does what, by when, and the follow-up?*
4. *Do we hold one another accountable, and are we accountable to each other?*
5. *Do we have good, healthy communication with each other during meetings, and day-to-day?*
6. *Do we know how to effectively communicate with management sponsors, and our potentially affected interests (internal and external customers)?*

CHARTER (Sample 1)
OR206 Deschutes River Bridge

November 15, 2009

- **Charter is assigned by:** Gary Farnsworth (Central Area Manager), Sam Wilkins (District 9 Manager), and Bert Hartman (Bridge Program Unit Manager); to: Mike Darling (Project Leader)

- **Brief, general description of the Project Assignment:** Provide a construction project on highway OR206 at the Deschutes River Bridge No. 00332, that will strengthen the structure such that load limits will be removed. The charge includes delivery of this project within the specified budget, with construction to occur in the 2012 construction season, while at the same time adhering to the mobility and delay commitments that have been made to the freight industry and traveling public with regards to this section of highway.

- **Problem Description:** The bridge is currently load rated. And although the average daily traffic using this structure is low, the bridge is part of a route designated as an alternate route for interstate I-84 during emergency situations. Strengthening the structure so that there are no load limits remaining will maintain and enhance mobility by allowing unrestricted use during emergency situations. Resolving this problem is important, because it's our responsibility to:

  1. Maintain and enhance mobility by allowing unrestricted use during emergency events as an alternative to interstate highway I-84.
  2. Protect assets by providing maintenance and retrofits. This includes life-cycle cost-benefit and environmental stewardship and sustainability as high priorities.
  3. Be responsive to local/regional economic and livability needs and interests that create long term benefits for both ODOT and the affected area. This section of highway OR206 is used for recreation, and the bridge is used as an angling platform. So, for example, with this project, delay in addressing the existing and near-term deteriorating bridge condition beyond 2012 will result in a decrease in safety for the traveling public, an increase in maintenance and life-cycle costs.
  4. Maintain construction-related traffic mobility as a top priority commitment by ODOT to the trucking industry, as part of the OTIA III program, and as part of ODOT's support to Oregon's economy.

- **<u>All or any expectations and outcomes:</u>** The priority order of the project deliverables are as follows:
  1. Strengthen the bridge superstructure
  2. Resurface the bridge deck
  3. Reconstruct guardrail approaches
  4. Upgrade bridge railing
  5. Perform seismic upgrades

  Involvement and informed consent with identified stakeholders such as ODOT Bridge Engineering, ODOT maintenance, Wasco County, Sherman County, Emergency Services, Statewide Mobility Committee, Columbia River Gorge commission, Oregon Parks and Recreation Department, and local businesses, for such items as bridge design, safety improvements, construction staging, and construction related traffic and freight mobility.

  On-time delivery into construction for 2012 construction season, meeting at least the top project scope priorities, within budget (at reasonable cost).

  Satisfied maintenance, bridge, and construction staff (and contractor) regarding maintainability and constructability of the design / contract documents, including the project development to construction hand-off process.

- **<u>All parameters (conditions, boundaries, constraints, design criteria) relevant to the effort:</u>**

  Construction is expected to be completed within existing right-of-way, and completed within the timeframe noted above. There are no other expectations for bridge design outside of current ODOT guidelines.

  STIP assigned PE and CN Budget is $2.948 million of STP funds.

- **<u>Clearly described decision-making authority boundaries and flexibilities between the Sponsor(s) and the PL/Team:</u>**

  Mike is authorized to make the following decisions within the Project Team structure:

  1. Setting and changing project oversight and involvement expectations: Team operating guidelines (covenants) and dynamics (e.g., frequency of meetings), work-flow and timing, and other tools to implement successful project delivery within the above expectations.
  2. Strategies to work with other internal and external stakeholders, although Sam Wilkins and Gary Farnsworth will be particularly interested in strategies for Wasco County, Sherman County, the adjacent business and property owners, emergency services, and Statewide Mobility Team.
  3. Technical /design decisions within the above expectations and within established ODOT technical business practices (e.g, regulatory, professional registration).

Specific Project decision-making authorities are as follows:

1. All project scope decisions/changes: ODOT Region 4 Management Team, with concurrence by the Bridge Program Manager.
2. Project Budget decisions: Area Manager (up to $250,000), Region 4 Project Delivery, Management Team (up to $500,000), Region 4 Management Team (over $500,000) for Region 4 funding, with concurrence by the Bridge Program Manager.
3. Project Schedule decisions: Area Manager (up to 90 days, within FFY), Region 4 Project Delivery Management Team (beyond 90 days, within FFY), Region 4 Mgt Team (beyond FFY) with concurrence by the Bridge Program Manager..
4. Design Acceptance: Area Manager, Tech Center Manager.

- **Method by which the Sponsor(s) PL/PM/Team will communicate with and support each other:**

  Routine verbal communication between Mike Darling (Project Leader) and Sam Wilkins, Gary Farnsworth and Project Team members as Mike and Sam see are needed.

  Routine informational emails, draft Change Requests, email/letter cc's on correspondence with stakeholders, any project highlight or change discussions at PDMT, etc.

  Meeting opportunities within stakeholder/citizen participation strategies (e.g., public meetings), or invitations by the Team to join a Team Meeting.

  The sponsors will provide support to Mike and the Team with other Region 4 Management Team members, Statewide Mobility Team, other stakeholders, and in Tech Services, etc.

- **Perspectives and expectations on how to go about the work:**

  Incorporate into initial team meetings review of the current Region 4 Design Acceptance Checklist, Region Design Acceptance Memo template, the Office of Preletting's current PS&E submittal forms, and at least Chapter 2 of the Highway Mobility Operations Manual for work planning and assignment purposes. Mike will also ensure the following are developed, maintained, and updated with the Project Team throughout project development:

  a. Project Team Agreement*
  b. Traffic Management Plan (TMP)
  c. Project Information Paper (PIP)
  d. Public Involvement Plan which integrates with the TMP and schedule
  e. Cost-budget status spreadsheet
  f. Prospectus consistent with items II and III above, MS Project Schedule (w/staff resources), all other Operational Notice (e.g., PD-02, PD-03) deliverables.

  Apply the Region 4 Change Request tool for communication and justification of scope, schedule, and budget changes.

- **<u>Names, roles and responsibilities of all team members, management sponsors, etc:</u>**

  Region 4 Tech Center (through Tech Center Manager Jon Heacock), The Dalles Construction Office and District 9 staff for oversight, production, decision-making, and review support as needed. Support from Rex Holloway (Community Liaison) and Peter Murphy (Public Information Officer) as needed. Current staff assignments include:
  - Fred Gomez will serve as Roadway Designer/Engineer of Record
  - Robert Tovar (Region 1 Structural Design Engineer)
  - Alan Hart (Roadway/Specifications Engineer)
  - Curtis Ehlers (Senior Engineering Geologist)
  - Traffic Operations Rep (Dave Foster)
  - Teresa Brasfield (Region Environmental Coordinator)
  - Greg Saurbier or Joseph Rodriguez(Roadway Drafter)
  - Terry Pistole (Right of Way)
  - Jim Bryant (Planning)
  - Dan Serpico (Access Management)

- **<u>Signature Blocks:</u>**

Gary Farnsworth (Area Manager) _____

Sam Wilkins (District 9 Manager) _____

Bert Hartman (Bridge Program Unit Manager) _____

Mike Darling (Interim Project Leader) _____

**Each Project Charter should also be supplemented by a Project Team Agreement. Created by the Project Team, such an Agreement will provide the operating guidelines to support successful delivery on the Charter, such as: encouraged group behaviors and norms, meeting frequency, conflict strategies, and roles of the team. Working through this will help the team address problems in advance. The Agreement should address the following questions the team members should be asking themselves as they form and interact:*

1. *Are we good at decision-making (what decision-making processes will be used, e.g., consulting, voting, consensus, PLUS)?*
2. *Do we understand and agree with authorities, roles, responsibilities, and expectations?*
3. *Do we do a good job documenting who does what, by when, and the follow-up?*
4. *Do we hold one another accountable, and are we accountable to each other?*
5. *Do we have good, healthy communication with each other during meetings, and day-to-day?*
6. *Do we know how to effectively communicate with management sponsors, and our potentially affected interests (internal and external customers)?*

CHARTER (Sample 2)
US97 Murphy Road Over-crossing

January 12, 2010

- **Charter is assigned by:** Gary Farnsworth (Central Area Manager) and Mark Devoney (Region Planning Manager); to: Stephanie Serpico (Project Manager)

- **Brief, general description of the Project Assignment:** Provide a construction project on US 97 @ Murphy Road that will increase safety and reduce congestion along the Bend Parkway by removing two of the three remaining traffic signals on US 97 at the south end of Bend. The project should result in improved access between the Bend Parkway and the local street system. It should also result in greatly improved connectivity along the local street network both east and west of the Bend Parkway, by extending Murphy Road so that it is continuous from the west to the east end of the City.

- **Problem Description:** The bridge is currently load rated. And although the average daily traffic using this structurThe southern section of the Bend Parkway was opened in 2001. Unlike the rest of the parkway, which features grade-separated interchanges, most of the intersections on the south end of the Parkway are at-grade with traffic signals. However, significant growth in the region-Bend was one of the fastest growing cities in the country for much of the last two decades-has caused the transportation system to be increasingly congested. These at grade intersections on the southern section of the Parkway slow travel and also create traffic conflicts and safety issues.

  It is very important to resolve this, because it is the ODOT Mission to provide a safe, efficient transportation system that supports economic opportunity and livable communities. US 97 is a designated freight route and the only major north-south route in Oregon east of the Cascade Mountains. US 97 plays a key role for travel to and within Central Oregon, and it also serves through traffic from California to Washington. ODOT has invested significant resources in improving US 97 for freight and passenger travel, including building the Bend Parkway and the Redmond Reroute. Both of these projects created new alignments for US 97 to offer a faster way for through traffic to travel through the region.

- **All or any expectations and outcomes:** The priority order of the project deliverables within Jobs & Transportation Act (JTA) funding are as follows:
  1. Realign and extend Murphy Road from Parrell Road to Brookswood Boulevard with a bridge and new roadway that crosses US97, including Murphy Road intersection improvements necessary at the new connections to 3rd Street and Brookswood Boulevard (e.g., roundabout at the new Murphy Road and Brookswood Boulevard intersection).
  2. Construct a new 3rd Street to US97 southbound fly-over connection.
  3. Remove the existing US97 at Pinebrook Boulevard signalized intersection, and modify access on the Agency street system as needed.

4. Remove the existing US97 at 3rd Street signalized intersection.
5. Make improvements between existing Murphy Road/3rd Street and US97/3rd Street, and modify the existing Murphy Road at 3rd Street intersection, given the realignment of Murphy Road and new connection with 3rd Street to the south.

As other funding becomes available, here are additional scope priorities for the overall project:

6. Construct a roundabout at Parrell Road and Murphy Road.
7. Construct a northbound frontage road from the Murphy Road extension to Pinebrook Boulevard on the west side of US 97 and improve the intersection with warranted traffic control device.
8. Modify and close the existing Badger Boulevard /US97 intersection.
9. Complete Agency street grid connections as specified by the Project's final IAMP.
10. Provide safe bicycle and pedestrian facilities for circulation across and parallel to the US97 and along the Project elements.
11. Construct a new north-south collector street along the west side of US 97 between the Murphy Road extension and Romaine Village Way, and construct a roundabout on new Murphy Road that connects to this new south Collector street.
12. Construct the following Overcrossing Connections to and from US97 :
    a. From new 3rd Street/Murphy Road intersection to northbound US97.
    b. From southbound US97 to new roundabout on Agency Collector Street

Involvement and informed consent with identified stakeholders such as ODOT Bridge Engineering, ODOT maintenance, City of Bend, The Bend Metropolitan Planning Organization (MPO), Property and Business owners within the Urban Renewal Area, Deschutes County, Emergency Services, Freight Industry representatives, for such items as bridge design, safety improvements, access management, residential and neighborhood impacts, construction staging, and construction related traffic and freight mobility.

On-time delivery into construction within 2012, meeting at least the top project scope priorities, within budget (at reasonable cost).

Satisfied maintenance, bridge, and construction staff (and contractor) regarding maintainability and constructability of the design / contract documents, including the project development to construction hand-off process.

- **<u>All parameters (conditions, boundaries, constraints, design criteria) relevant to the effort:</u>**

Extensive right-of-way acquisition is expected before any construction can begin, and in order to begin the acquisition in an expedited manner, careful consideration of environmental and land use processes need to be carefully evaluated and understood in terms of streamlining.

There is a clear expectation that Practical Design will be the guiding principles for the project, certainly on the state highway elements, and as agreed upon by the City for city street portions of the project.

Assigned PE, R/W, UR, and CN Budget is $25.1M ($25M JTA, $0.1M City).

- **Clearly described decision-making authority boundaries and flexibilities between the Sponsor(s) and the PL/Team:**

  Stephanie is authorized to make the following decisions within the Project Team structure:

  1. Setting and changing project oversight and involvement expectations: Team operating guidelines (covenants) and dynamics (e.g., frequency of meetings), work-flow and timing, and other tools to implement successful project delivery within the above expectations.
  2. Strategies to work with other internal and external stakeholders, although Gary and Mark will be particularly interested in strategies for the City of Bend, MPO, the adjacent business and property owners, emergency services, freight industry representatives, and neighborhood associations.
  3. Technical /design decisions within the above expectations and within established ODOT technical business practices (e.g, regulatory, professional registration).

Specific Project decision-making authorities are as follows:

1. All project scope decisions/changes: ODOT Region 4 Management Team, with concurrence by the City of Bend for city system components.
2. Project Budget decisions: Area Manager (up to $250,000), Region 4 Project Delivery, Management Team (up to $500,000), Region 4 Management Team (over $500,000) for Region 4 funding, with concurrence by the Bridge Program Manager.
3. Project Schedule decisions: Area Manager (up to 90 days, within FFY), Region 4 Project Delivery Management Team (beyond 90 days, within FFY), Region 4 Mgt Team (beyond FFY) with concurrence by the Bridge Program Manager..
4. Design Acceptance: Area Manager, Tech Center Manager.

- **Method by which the Sponsor(s) PL/PM/Team will communicate with and support each other:**

  Routine verbal communication between Stephanie, Gary/Mark and Project Team members as Stephanie and Gary see are needed.

  Routine informational emails, draft Change Requests, email/letter cc's on correspondence with stakeholders, any project highlight or change discussions at PDMT, etc.

  Meeting opportunities within stakeholder/citizen participation strategies (e.g., public meetings), or invitations by the Team to join a Team Meeting.

  The sponsors will provide support to Stephanie and the Team with other Region 4 Management Team members, Statewide Mobility Team, other stakeholders, and in Tech Services, etc.

As another important communication and input method, Gary will also support Stephanie by facilitating a project Steering Team consisting of Bob Bryant (Region Manager) and Eric King (City Manager), along with other key support staff from the City and ODOT.

- **Perspectives and expectations on how to go about the work:**

  With Stephanie in the lead, project development will be co-managed with Nick Arnis (City of Bend Project Manager) and Dave Simmons (CH2MHill Project Manager). Project development at least through Design Acceptance is essentially being delivered through a full service type contract through the City of Bend, and by Intergovernmental Agreement between the City and ODOT.

  Incorporate into initial team meetings review of the current Region 4 Design Acceptance Checklist, Region Design Acceptance Memo template, the Office of Pre-letting's current PS&E submittal forms, and at least Chapter 2 of the Highway Mobility Operations Manual for work planning and assignment purposes. Stephanie will also ensure the following are developed, maintained, and updated with the Project Team throughout project development:

  a. Project Team Agreement*
  b. Traffic Management Plan (TMP)
  c. Project Information Paper (PIP)
  d. Public Involvement Plan which integrates with the TMP and schedule
  e. Cost-budget status spreadsheet
  f. Prospectus consistent with items II and III above, MS Project Schedule (w/staff resources), all other Operational Notice (e.g., PD-02, PD-03) deliverables.

  Apply the Region 4 Change Request tool for communication and justification of scope, schedule, and budget changes.

- **Names, roles and responsibilities of all team members, management sponsors, etc:**

  Region 4 Tech Center (through Tech Center Manager Jon Heacock), City of Bend, the Bend Construction Office and District 10 staff for oversight, production, decision-making, and review support as needed. Support from Rex Holloway (Community Liaison) and Peter Murphy (Public Information Officer) as needed. Current staff assignments include:

  - Mike Morris (Roadway Engineer)
  - Gary Larson (Region Environmental Coordinator)
  - Amy Pfeiffer (Environmental Project Manager if NEPA class 1 or 3)
  - Bill Hilton (District 10)
  - Jay Davenport (District 10 Construction APM)
  - Rex Holloway (Community Liaison)
  - Peter Murphy (Public Information Officer)

The current staff assignments for production and review:

- Jim Bryant (Senior Planner)
- Jules Wetzel (Region Surveyor)
- Terry Pistole (Senior Right of Way Agent)
- Dan Serpico (Traffic Analyst - Access Management)

- **Signature Blocks:**

Gary Farnsworth (Area Manager) _____

Mark Devoney (Planning Manager) _____

Stephanie Serpico (Project Manager) _____

**Each Project Charter should also be supplemented by a Project Team Agreement. Created by the Project Team, such an Agreement will provide the operating guidelines to support successful delivery on the Charter, such as: encouraged group behaviors and norms, meeting frequency, conflict strategies, and roles of the team. Working through this will help the team address problems in advance. The Agreement should address the following questions the team members should be asking themselves as they form and interact:*

1. *Are we good at decision-making (what decision-making processes will be used, e.g., consulting, voting, consensus, PLUS)?*
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5. *Do we have good, healthy communication with each other during meetings, and day-to-day?*
6. *Do we know how to effectively communicate with management sponsors, and our potentially affected interests (internal and external customers)?*

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MARCH 2010

OREGON DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION