



# **Open Roads**

*Practical Design for Transportation Project Delivery*

May 28, 2014





## **Our Mission**

INDOT will plan, build, maintain and operate a superior transportation system to enhance safety, mobility and economic growth.



## **Our Values**

### **Respect**

Treat others fairly. Value the individual skills, experience, diversity, and contributions of fellow employees.

### **Teamwork**

Share information and seek input from co-workers and agency partners to achieve goals.

### **Accountability**

Take personal responsibility for actions and decisions.

### **Excellence**

Provide exceptional customer service through individual initiative, innovation, and delivery of quality results.

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## I. Background

### A. Introduction

The Indiana Department of Transportation (INDOT) has embarked upon a process that promises to fundamentally change the way its projects are developed, designed, and delivered. In other states, the process is known as Practical Design or Practical Solutions. Indiana's program is called *Open Roads*.

Results, collaboration, empowerment, and innovation - these words characterize and define *Open Roads*. *Open Roads* offers the opportunity for new ideas and alternative approaches to transportation project delivery to enhance INDOT's ability to plan, build, maintain and operate a superior transportation system to the benefit of the citizens of Indiana.

*Open Roads* acknowledges that Practical Design encompasses more than merely the design discipline. In addition to design, it has application to a broad range of procedural and operational aspects of INDOT's project delivery model, including planning, scoping, design, construction, operation, and maintenance.

This Program Guide provides an outline and recommendations for implementation of INDOT's *Open Roads* program utilizing Practical Design methodology as a foundation. Periodic revisions to this guide are expected as INDOT continues to develop and refine its *Open Roads* policy and program.

### B. *Open Roads* Defined

*Open Roads* is a departure from the traditionally rigid code-based system of design standards that has been most commonly used throughout the United States. It is both process and product, and an integral part of a national trend toward performance-based project delivery methods. As a process, *Open Roads* encourages innovation and flexibility, and requires more information and a higher level of analysis when defining and deciding on the most appropriate solution to a particular problem. As a product, it places emphasis upon solutions that contribute to the overall condition and function of the corridor instead of attempting to achieve the safest and most desirable condition for a single project. *Open Roads* will benefit Indiana's statewide transportation infrastructure by tailoring design solutions and construction methods to deliver specific results. INDOT expects to see reduced costs throughout the project lifecycle,

#### 2014 Agency Goal #5:

"Establish a culture of continuous improvement that reduces operational and construction expenses, and channels more dollars to capital investments through the implementation of revised practical design standards throughout the project delivery process."

resulting in opportunities for reinvestment of dollars saved to expand and accelerate development, design and delivery of projects within the state's transportation improvement plan.

A critical evaluation of the existing project delivery model is a necessary part of the *Open Roads* process. The process requires a cultural shift, a new way of thinking, and alternative considerations. An open-mind is essential. *Open Roads* relies upon a strong purpose and need project statement, and a clear process for approving and documenting the rationale for important decisions. It requires good engineering judgment to assess the severity of adverse consequences, evaluate design tradeoffs, and mitigate risks where practical. The end result will ensure INDOT's ability improve safety, mobility and economic growth throughout the state.

*Open Roads* will also help INDOT realize one of its 2014 agency goals by "establishing a sustained culture of continuous improvement that reduces operational and construction expenses by implementing revised practical design standards throughout the project delivery process."

### **C. Practical Design Works!**

Challenged by increasing financial limitations, changing consumer demand and mobility patterns, and aging infrastructure, Practical Design was pioneered as a transportation project delivery methodology by the Missouri Department of Transportation (MoDOT) in 2005. MoDOT sought an alternative project development process that would enable it to consistently deliver system-wide improvements, enhanced mobility, and improved safety. Now, after nearly ten years in use, Missouri is celebrating \$2.0 billion in savings attributable to Practical Design while significantly improving customer satisfaction and road conditions statewide.

The three cornerstones of Missouri's program are safety, communication, and quality:

1. Safety – Every project designed with practicality in mind, must get safer. There is no room for compromise where safety is concerned.
2. Communication – There is collaboration in developing every practical solution. Communication among designers, stakeholders, and administration officials must be open, tolerant, and frequent.
3. Quality – The practical solution must function properly and cannot leave a legacy of maintenance challenges. With Practical Design, quality remains at the forefront.

#### **Practical Design in practice:**

- Missouri
- Kentucky
- Utah
- Idaho
- Oregon

Missouri's success spawned similar initiatives in other states such as Kentucky, Idaho, Utah, and Oregon from 2007-2011. While each state has achieved varying levels of success, adopted a slightly different name, and set of guidelines specific to their individual needs, the overall theme has been consistent. Each state has shifted its design focus and resource allocation toward maximizing the condition and function of the corridor versus individual project perfection. In this manner, the overall value of the transportation system is improved as opposed to only a few isolated locations. Practical Design has increased the ability of these states to deliver more cost-effective design solutions, without comprising safety or quality, and enhance their respective transportation systems.

INDOT applauds and acknowledges the achievements of these states, and embraces Practical Design methodology as a vital tool to effectively deliver its statewide transportation improvement program.

#### **D. *Open Roads* Principles**

The foundation of *Open Roads* is firmly established in four principles that, when applied at the project level, create the need for productive dialogue and debate of traditional approaches to transportation project decision-making. In most states, the Design Manual has evolved into a rigid set of regulations that leaves little room for interpretation, and results in an approach known as “designing to the manual” when “designing to the purpose and need” of the project is more appropriate. Most transportation problems require a tailored solution to which Practical Design methodology can be applied to produce a best value outcome. Dialogue and debate of long-held beliefs and approaches to design will foster more creative solutions and innovation to solve today's project needs. As a result, Design Exceptions are encouraged, but must be adequately supported. All ideas are considered valid until proven otherwise, regardless of past decisions or considerations. It's important to ask, “Why do we do it this way”, and more importantly, “Is there a better way to do it”?

##### ***Open Roads* Principles:**

- Sound Engineering Judgment
- “Design Up” Philosophy
- Get the Scope Right
- Safer, System Focus

The four principles of *Open Roads* are as follows:

1. Sound Engineering Judgment – Designers should first rely upon the application of sound engineering judgment when considering design alternatives and solutions. Design decisions should be driven by common sense, context awareness and sensitivity, and innovation. Over-reliance upon traditional design standards and approaches has a tendency to pre-determine the outcome without adequate consideration for alternative, more practical solutions.
2. “Design Up” Philosophy – Designers should employ a “design up” philosophy to project design. Rather than starting with the “desirable” condition and often being forced to

remove items to meet scope and budget, the designer should consider the existing condition of the facility as the baseline condition, and “design up” from that point to meet the project’s purpose and need. More often than not, the end result is a facility that is safe, practical, and less costly than anticipated. Any investment beyond the purpose and need of the project (i.e., point of diminishing return) is an inefficient use of resources that would likely yield a higher return if invested elsewhere. Great care should be taken to carefully evaluate and identify the point of diminishing return for each project.

3. Get the Scope Right – The purpose and need statement within the Engineer’s Report (i.e., “Project Scope”) serves as the basis for system-wide improvements and individual project development. Every project should have a well-defined and documented purpose and need statement that specifies the problem to be solved and future goals of the corridor/system to be achieved by the proposed project. Any features that do not directly support the purpose and need should be re-evaluated, redesigned, or eliminated. Practical Design reduces the tendency for “scope creep” by designing to, without exceeding, the purpose and need for the project. This approach maximizes the value and contribution of individual projects to the overall transportation system.
4. Safer System Focus – Designers are encouraged to shift the design focus away from attempting to achieve individual project perfection and toward solutions that optimize the condition and performance of the corridor. System safety is paramount and must not be sacrificed. Targeted investments in specific locations can have a compounding positive impact upon the overall corridor, more so than a large investment in a single location. All projects must be as safe, or safer, than the existing condition. Careful consideration should be given to alternative strategies and creative approaches to mitigating safety concerns.

## II. Stakeholder Engagement

INDOT’s approach to *Open Roads* relies principally upon early, deep, and consistent stakeholder engagement. Feedback and input from program stakeholders is valuable to the effort. Three hundred sixty degree communication at all levels of the organization is essential.

INDOT hosted a Stakeholder Workshop in February 2014 to kick-off its Practical Design initiative. The purpose of the workshop was to engage, listen, and share ideas, experiences, and solutions that will propel INDOT to the forefront of performance-based project delivery methods. More than seventy-five representatives of INDOT and Indiana’s consulting and construction trades attended the event in Indianapolis. The Workshop produced a list of internal policy issues and processes for further study and

### Stakeholder Workshop Results:

- Project Scoping and “Call for Projects”
- Maintenance of Traffic
- Constructability Reviews
- Best Value Bidding/Contracting
- Hydraulics/Structures
- Design Exceptions and Design Review

analysis that have become part of the *Open Roads* agenda and program of work.

Additional internal and external efforts to communicate decisions and solicit input into the formation of INDOT's *Open Roads* program include:

1. Reinforcing an already strong partnership with the Indiana Division of Federal Highway Administration
2. Participation in select INDOT division and district meetings
3. Presentations at select industry trade and interest group meetings
4. Individual consultant meetings
5. Presentation at annual Purdue Road School educational program
6. Creation of an *Open Roads* web page containing helpful resources and information
7. Hosting an industry update meeting to share lessons learned and emerging best practices

Continuous stakeholder engagement and collaboration throughout the project development process is essential to providing proper focus and definition to the purpose and need of the project. Multi-disciplinary participation is necessary to achieving a broad view of the project and related issues. Everyone has a voice and should be encouraged to listen, learn, and share varying points of view on particular aspects of the project. Understanding the individual and collective influence and impact of each decision upon the condition and function of the corridor is vital to delivering the right solution to meet the project's purpose and need.

### **III. Practical Design Applied**

The application of Practical Design methodology will be initially encapsulated in a binary effort to improve planning, scoping, design, construction, operation, and maintenance of all projects currently programmed in INDOT's 5-year construction plan. Beginning with projects having a contract letting date after January 1, 2015, this effort will be undertaken by:

1. Project Review Teams – charged with reviewing project designs and supporting documents to identify opportunities for individual design efficiencies that translate to a minimum 10% construction cost savings; and,
2. Policy Advisory Teams – tasked with identifying specific policy and process improvements to streamline decision-making and expedite project delivery.

Guidelines for the organization and operation of these teams, and the application of Practical Design methodology is as follows:

#### **A. Project Review Teams**

1. Team Composition:

There will be six (6) individual, multi-disciplinary Project Review Teams established – one in each district. The teams will be led by the assigned INDOT Project Manager by and through consultation and coordination with the District Technical Services Director and Capital Program Management Director. The composition of each team may vary depending upon district resource availability and individual project need and scope, but should generally be comprised of knowledgeable and experienced individuals representing the following disciplines:

- a. Project Management
- b. Project Scoping
- c. Design
- d. Bridge/Hydraulics
- e. Pavement
- f. Traffic
- g. Construction
- h. Maintenance
- i. CO Design Reviewer
- j. Consultant(s)

**Multi-disciplinary Project Teams:**

“...will support and reinforce a “ONE INDOT” culture and encourage broad interagency participation in the Practical Design process.”

Project Review Teams should have relative freedom and flexibility to recruit and solicit assistance from any and all INDOT technological and personnel resources, disciplines, divisions, and offices for assistance and guidance during the project review process. This approach will support and reinforce a “ONE INDOT” culture and encourage broad interagency participation in the Practical Design process.

2. Project Review Process:

The project review process will generally rely upon existing agency processes, and procedures to facilitate and expedite decisions, actions, and results as quickly as possible. The Change Management process will be used to account for proposed changes. The project review process will be as follows:

- a. Project Manager, District TSD, and District CPMD will identify specific team members and publish a meeting schedule to be shared with all participants, in addition to the Practical Design Director and CO Directors of Highway Design, Bridges/Hydraulics, Pavement, Traffic, Construction, and Maintenance.
- b. Project Review Teams shall meet as needed, but no less than one time per month, starting in June and concluding in November. More frequent meetings may be necessary. Due to geographic and other scheduling constraints that may make regular face:face meetings difficult to plan and execute both timely and effectively, all meetings should have WebEx or conference/electronic media capability to a maximize participation from all team members.

c. Project Review Teams will assemble to evaluate projects using Practical Design methodology and other guidance as appropriate. The steps in the review process are as follows:

- (1) Evaluate the Project Scope. Is the scope accurate, detailed, and specific? A brief site visit or Field Check may be necessary to confirm certain site/project details.
- (2) Discuss how the design meets the Purpose & Need of the project. Be honest. The easy answer may not always be the best answer or the most practical solution.
- (3) Evaluate and discuss opportunities and alternatives to major project design elements including, but not limited to the following:
  - i. Lane width
  - ii. Shoulder width, depth, and material
  - iii. Ditch profile and location
  - iv. Horizontal & Vertical Alignments
  - v. Pavement – type, depth, and material
  - vi. Hydraulic/Structures – size, width, span, and material
  - vii. Alternative construction materials and techniques
  - viii. Alternatives to right of way acquisition and utility relocation

For best results, it is important to productively challenge subjective statements and otherwise routine decisions throughout the process. Ask tough questions of one another. Ask for an explanation and clarification of terms, data, and other project details to validate and support the design decision.

- (4) Stop investing resources when the design solution achieves a condition as safe or safer than the existing condition and meets the purpose and need for the project. This is the point of diminishing return. Continued investment beyond the point of diminishing return will yield little benefit for the dollars spent. These dollars will likely result in a higher return on investment elsewhere.
- (5) Seek to eliminate individual design elements that drive costs upwards, but contribute little to no value to the project or system performance.
- (6) Seek a collective set of solutions that exceed the targeted 10% construction cost savings.
- (7) Engage, collaborate and coordinate with individual project stakeholders that may be impacted by potential design changes. Particular attention should be paid to projects of high public interest and political sensitivity.
- (8) Refer to Design Guidance outlined below.

- d. Project Review Teams shall identify, track, and document key decisions and best practices encountered during the review process. Appropriate remarks are to be timely and accurately entered in the SPMS project log. Specific design alternatives, issues, ideas, actions, and approaches should be summarized on a Project Review Worksheet to be provided by the Project Designer.
- e. Project Designer will refine and analyze the concepts generated by the Project Review Team, detailing alternative design concepts, estimated cost savings, and advantages/disadvantages to adoption and implementation.
- f. Project Review Worksheets, and any supporting documentation, will be submitted to the Practical Design Director, CO Director of Bridges, Highway Design, Pavement, Traffic, Construction, and Maintenance for statewide consistency and compliance review in accordance with Practical Design methodology, and other considerations such as safety, constructability, and maintenance. Submittals must include the following information:
  - (1) Project Location – district, city, town, county, etc.
  - (2) Name of Project Manager
  - (3) Route/Road
  - (4) Work Type
  - (5) Des #
  - (6) Project Budget and Schedule
  - (7) General Description of existing project design elements
  - (8) Detailed description of proposed design changes, including design exceptions
  - (9) Estimated cost reduction/increase of proposed design changes – expressed in dollars and as percentage of construction budget
  - (10) Scheduled contract letting date. Can proposed design changes be implemented with or without moving the letting date?
  - (11) Maps, photos, plans, graphics, figures, data, charts, and other documentation needed to support proposed design changes.
- g. Designer will consult, prepare, and submit requests for Design Exceptions to the CO Director of Bridges and/or Director of Highway Design & Technical Support, as appropriate. All deviations to Level 1 and Level 2 safety/design criteria (i.e., guardrail) shall be identified and included for review and concurrence by the CO Director of Bridges and/or Highway Design.
- h. Project will be forwarded to Change Management for review. Changes to currently programmed projects letting after January 1<sup>st</sup>, 2015 will be submitted through the existing Change Management process for review by the Program Management Group. In order to track which changes in the program occurred because of Practical Design, a new selection option in SPMS has been added

under “Change Requested” which is labeled as “Practical Design”. This will allow for all Change Management requests to be queried and sorted for accurate record keeping and analysis. This will apply to all changes, regardless of dollar amount. Changes that reduce funding to a project will result in a redistribution of funds. The funds released from a project will be moved from the Contract/DES. No. and into a District Placeholder DES. No., dollar for dollar, at the time of contract letting when actual dollar amounts are known. This process is equivalent to making a transfer from one’s personal checking account to savings account for later use. This “transfer” should be easily reconciled to the changes made through the Practical Design process in the Change Management workflow.

- i. Practical Design changes are made by the Designer.
- j. Practical Design changes are reviewed by CO Design Review staff.
- k. Project is Ready for Contracts (RFC)
- l. Contract Letting occurs

3. General Design Guidance:

- a. Engineering Judgment - Project Review Teams should first rely upon application of sound engineering judgment when considering design alternatives and solutions.
- b. Challenge Existing Standards – Project Review Teams are encouraged to productively challenge all applicable policies, practices, standards, and design criteria toward finding the most economical and practical design solutions. All ideas are considered valid until proven otherwise, regardless of past decisions or considerations.
- c. Design Exceptions – Project Review Teams are afforded significant latitude and flexibility to develop the most innovative, practical, and cost-effective design solutions without compromising safety, quality, or creating a cost burden for maintenance. Design Exceptions are encouraged, but must be adequately supported, regardless of past practice, policies, or decisions.
- d. Design Up Philosophy – Project Review Teams should employ a “design up” philosophy to project design. Rather than starting with the “desirable” condition and possibly removing items until the project meets scope and budget, Teams should consider the existing condition of the facility as the baseline condition, and design “up” from that point to meet, not exceed, the project’s purpose and need.

- e. Safer System Focus – Project Review Teams should strive to make all projects safer than the existing condition, and shift the design focus away from attempting to achieve individual project perfection and toward solutions that optimize the condition and performance of the corridor. System safety is paramount and must not be compromised.
- f. Indiana Design Manual – See attached Design Memorandum.
- g. AASHTO “Green Book” – the AASHTO “Green Book” shall be considered the primary geometric design guidance resource. Project Review Teams are encouraged to seek cost-effective design solutions and alternatives supported by sound engineering judgment, context awareness and sensitivity, relevant industry research and analysis, and AASHTO design criteria.
- h. Successful States – Project Review Teams may rely upon successful strategies and Practical Design guidance issued by the states of Missouri, Kentucky, Idaho, Oregon, and Utah as resources for developing design alternatives. If used, appropriate documentation, analysis, and support are necessary to demonstrate relevance and applicability to the project.

4. Project Documentation:

The following project plans, design guidance, and related documentation are essential elements needed to assist the Project Review Team in making the best possible decisions regarding design alternatives. These documents, reports, and information should be readily available to the Project Review Team while the project is being reviewed. Periodic reference to these resources will be necessary throughout the project review effort and are valuable to the Project Review Team’s ability to make timely and accurate decisions.

- a. Complete set of project plans and supporting documentation
- b. Engineer’s Report
  - (1) Project scope/purpose & need statement
  - (2) Understanding of the corridor context
  - (3) Safety issues and concerns, hazardous conditions, etc.
  - (4) Traffic Data – volume, turning movements, accident history, speed, etc.
  - (5) Project Cost Estimate
  - (6) Project Schedule
- c. Special Provisions, Commitments, and Agreements
- d. Environmental/NEPA documents, permits, etc.

- e. Technical Design Guidance Documents
  - (1) American Association of State Highway Transportation Officials (AASHTO)
    - i. A Policy on Geometric Design of Highways & Streets, 6<sup>th</sup> Edition - 2011 (i.e., “Green Book”)
    - ii. Highway Safety Manual, 1<sup>st</sup> Edition – 2010
    - iii. A Guide for Achieving Flexibility in Design, 1<sup>st</sup> Edition
    - iv. Highway Capacity Manual - 2010
  - (2) Indiana Design Manual
  - (3) Other States’ Practical Design Guides
    - i. Missouri – Practical Design Implementation Guide
    - ii. Utah – Practical Design Guide
    - iii. Idaho – Practical Solutions for Highway Design
    - iv. Oregon – Practical Design Strategy
    - v. Kentucky – Practical Solutions Concepts for Planning & Designing Roadways

## **B. Policy Advisory Teams**

The Policy Advisory Teams will evaluate specific opportunities for policy and process improvements to streamline decision-making and expedite project delivery that were identified at the Stakeholder Workshop in February 2014, as follows:

- Project Scoping and “Call for Projects”
- Maintenance of Traffic
- Constructability Reviews
- Best Value Bidding/Contracting
- Hydraulics/Structures
- Design Exceptions and Design Review

### **1. Team Composition:**

There will be six individual, inner-disciplinary Policy Advisory Teams established. Each team will be comprised of five individuals - led by a Team Captain (TC), and four other representatives deemed knowledgeable and experienced in the topic, policy, or process being evaluated. Any member of the team may serve as the TC. The size and composition of each team may vary depending upon individual and resource availability and scope of work, but will generally be as follows:

- a. Consultant/Contractor Representative
- b. Consultant/Contractor Representative
- c. INDOT/Consultant/Contractor Representative
- d. INDOT Central Office Representative
- e. INDOT District Office Representative

Policy Advisory Teams will have relative freedom and flexibility to recruit and solicit assistance from any and all INDOT technological and personnel resources, disciplines, divisions, and offices for assistance and guidance during the policy review process. This approach will support and reinforce a “ONE INDOT” culture and encourage broad interagency participation in the Practical Design process.

2. Policy Advisory/Review Process:

The policy advisory/review process will generally rely upon existing agency processes, and procedures to facilitate and expedite decisions, actions, and results as quickly as possible. When completed, recommended policy changes, technical or procedural memorandums, and other suggestions to modify certain practices or decision-making processes will be forwarded to the respective INDOT business owner (i.e., Division Director) and the Practical Design Director for review and consideration.

The policy advisory/review process will be as follows:

- a. Initial Meeting – All six Policy Advisory Teams will assemble together at an initial organizational meeting to be held during the month of June 2014.
- b. Appointment of Team Captain (TC) – Each Policy Advisory Team shall appoint its own Team Captain from among its five members. The TC will be the primary spokesperson for the team, and should possess the ability to facilitate a productive discussion toward the identification of certain policy and process improvements relative to the specific issue or topic to which the team has been assigned.
- c. Regular Meetings - Each Policy Advisory Team shall meet as needed, but no less than one time per month, starting in June and concluding in November. More frequent meetings may be necessary. Due to geographic and other scheduling constraints that may make regular face:face meetings difficult to plan and execute both timely and effectively, all meetings should have WebEx or conference/electronic media capability to maximize participation from all team members.
- d. Meeting Schedule - Each Policy Advisory Team shall publish a meeting schedule to be shared with all team members, in addition to the Practical Design Director and CO Directors of Highway Design, Bridges/Hydraulics, Pavement, Traffic, Construction, and Maintenance.
- e. Evaluate Existing Policy – If not already, each team member should become knowledgeable of the policy contents, purpose, and applicability. The team should evaluate and discuss opportunities and alternatives to major policy elements such that the policy’s strengths are enhanced and its short-comings

reduced or eliminated. Key questions to ask include:

- (1) What is the purpose of the policy?
- (2) Is the policy relevant and necessary?
- (3) Does the policy add value to the decision-making process?
- (4) Is there a better way to do business?
- (5) Has another State DOT already perfected the process?
- (6) Are there FHWA, AASHTO or other national resources available on this topic?

f. Apply the Principles of Practical Design – the Policy Advisory Team should explore a wide range of potential remedies by challenging the current approach and applying the principles of Practical Design.

(1) Sound Engineering Judgment - applies equally to the policies that support project development as it does to technical design standards. Policy decisions should be driven by common sense, context awareness and sensitivity, and innovation. Over-reliance upon traditional approaches has a tendency to prejudice the outcome without adequate consideration for alternative, more practical solutions. Think “outside the box”.

(2) Get the Scope Right – each policy should have a definitive purpose and need statement that explains its role and importance to the Project Development Process. Any steps or procedures within the policy that do not directly support the purpose and need should be re-evaluated or eliminated. Getting the scope right reduces the tendency for “scope creep” by designing to, without exceeding, the purpose and need for the policy. This approach maximizes the value and contribution of the individual policy to the overall Project Development Process.

g. Focused Results – The end result of the Policy Advisory/Review Process should be a specific set of recommended changes to current policy or practice that streamline the decision-making process and expedite project delivery.

h. Seek to eliminate individual steps, actions, or decisions that merely add time and cost to the decision-making process and contribute little to no value to the end result.

i. Engage, collaborate and coordinate with individual policy stakeholders that may be impacted by potential changes. Particular attention should be paid to policies that contain specific reference to state and federal law or other rules and regulations of governmental review agencies.

- m. Appropriate notes and/or meeting minutes should identify, track, and document the discussion, key decisions, and best practices encountered during the policy review process.
- n. Specific policy alternatives, issues, ideas, actions, and approaches are to be summarized on the Policy Review Worksheet, detailing advantages/disadvantages, and estimated time and cost savings, if quantifiable.
- o. Policy Review Worksheets, and any supporting documentation, should be submitted to the Practical Design Director and the INDOT business owner of each respective policy (i.e., Division Director) for consistency and compliance review in accordance with Practical Design methodology and feasibility for implementation.

## **IV. Success Indicators**

Evidence from the states of Missouri, Kentucky, Utah, Idaho, and Oregon has overwhelmingly proven that Practical Design works. The program's longevity in Missouri is indicative of MoDOT's cultural and systematic evolutionary success. In Indiana, implementation of *Open Roads* will also necessitate cultural and systematic change. The agency must adopt and adapt to a new way of thinking and the inclusion of alternative design strategies for delivering its transportation improvement program. This process will require full and complete integration of Practical Design methodology throughout the agency to unify and enhance project planning, scoping, design, construction, and maintenance operations. The end result will improve and ensure INDOT's ability to deliver the best valued projects while enhancing safety, mobility and economic growth throughout the state.

Programmatic Performance Measures will include accurate accounting for and analysis of the following:

### **A. Current 5-yr. Program**

- 1) Total cost savings attributable to Practical Design, expressed in dollars and as a percentage of construction estimates.
- 2) Number, type, location, and cost (dollars and percentage) of projects implemented w/Practical Design.
- 3) Number, type, and cost savings associated with Design Exceptions.
- 4) Number, type, and cost savings associated with specific design alternatives and changes.

**B. Program Expansion/Acceleration**

- 1) Number, type, location, and cost of individual projects that were developed and/or accelerated due to Practical Design.

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