

FINAL

OREGON DEPARTMENT OF TRANSPORTATION

ECONOMIC AND BRIDGE OPTIONS REPORT

**A REPORT TO THE
OREGON TRANSPORTATION COMMISSION**

**PREPARED BY THE ECONOMIC & BRIDGE OPTIONS TEAM
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PREFACE

20 DAYS IN MARCH...OR THE “RIDDLE EFFECT”

For 20 days in March 2001, the Oregon communities of Canyonville and Riddle experienced a surge in truck traffic unlike anything they had ever seen before. Ford’s Bridge, an I-5 bridge several miles away, was closed for emergency repairs, and the truck detours ran right through the main streets of these two towns of fewer than 1,500 people a half-hour drive south of Roseburg.

The city’s streets and bridges were not built to handle such a volume of large trucks. Some of the streets were too narrow, some of the corners too sharp and some of the bridges were too weak to accommodate large volumes of heavy trucks. The results were safety concerns and infrastructure damage to city facilities.

The detours had a negative effect on commerce in the region. Hayes Oil of Medford continued hauling 80 truckloads of gas and oil per week using the detour routes. Depending on which detour they took, Hayes added 100-200 miles per trip. Terrain Tamers split their 25 loads of wood chips per day into smaller loads, increasing shipping costs \$150 per load.

No serious crashes were reported, but residents expressed serious concerns for their safety and that of their children. “I think the trucks are going through town way too fast,” resident Korenia Franklin told the local newspaper. “We have kids everywhere at lunch hour. I think that this is extremely dangerous. There’s too much traffic.” School buses were rerouted, parking was restricted and detour signs went up.

The Oregon Department of Transportation (ODOT) put the project on a fast track, made repairs to the bridge that are expected to last 3-5 years and got the trucks back on I-5 for the short term. With funding from the Oregon Transportation Investment Act, ODOT began construction of a permanent replacement bridge in August 2002.

This same situation has occurred in Mt. Vernon, Juntura and other rural communities in the last two years. By the year 2010, ODOT expects that at the current level of investment 30 percent of bridges could be posted with reduced weight limits.

This means that the situation described above will happen more and more frequently, affecting local businesses and degrading community livability. As the frequency increases, the dollars available to address the problems are used up faster. The emergency bridge posting are likely to restrict trucks at 64,000 lbs. and last longer than the three-week closure that occurred at the Ford’s Bridge.

EXECUTIVE SUMMARY

PROBLEM

Oregon experienced a bridge-building boom in the 1950s and early 1960s as the interstate system was established. The hundreds of bridges built on the interstates and other routes during that period were designed to be replaced after about 50 years and are now at or nearing the end of their planned use. These bridges were not built to be maintained indefinitely, but rather to be replaced at the end of their useful life. Nearly 25 percent of Oregon bridges are greater than 50 years old. *See Appendix A for additional background on bridge conditions and history.*

With cracks weakening the aging structures, ODOT is forced to limit the weights allowed to cross many bridges for public safety. These weight limits cause a variety of problems for Oregon businesses and communities, as well as the state's overall economy. Weight limits lead to truck detours, which put trucks on city streets and other roadways that often have inadequate maintenance funding and were not built for these loads. In addition to safety concerns resulting from increased traffic detours through local communities, the current deterioration of local bridges impedes the response time of emergency personnel to reach citizens. For businesses that rely on trucks to bring raw materials and to deliver products, detours mean increased transportation costs, eroded profit margins and other negative impacts.

The decision is “when” not “if” the state will make sizable investments in these fundamental public facilities. The ODOT Bridge Strategy Task Force confirmed in June 2002 that the bridge problem is real and will require a major rebuilding program. *See Appendix B for a summary of Task Force recommendations.* The total estimated cost to repair all deficient bridges is \$4.7 billion. The manner and timing of funding will influence how and where the Oregon economy grows, shifts or stagnates. ODOT has been working on a solution to this statewide problem in cooperation with a variety of stakeholders and decision-makers.

The most difficult decision is to determine when these investments begin and how to generate the revenue. To help with this decision, ODOT conducted an economic analysis using its integrated statewide model. This analysis suggests that the longer the state delays increasing investments in bridge restoration, the greater the adverse effect on the state's economy. If bridges are allowed to deteriorate to load limits of 80,000 lbs., for example, the state faces a potential reduction in future productivity of \$14 billion and 16,000 jobs. If bridge weight limits drop to 64,000 lbs., the loss of future productivity could be \$123 billion and 88,000 jobs. *See Appendix C for a description goods movements and truck weights and Appendix D for the economic analysis.* Although statewide impacts are significant, shifts in production and employment are even more significant at the regional level, with some parts of the state gaining and some losing.

RECOMMENDATIONS

The appendices to this report document the process and include substantial information that was used to develop these recommendations. This includes economic modeling of a variety of

scenarios, Motor Carrier Division restrictions and requirements, surveys of user groups, as well as input and participation by cities, counties and other interested parties. This information was combined with on site bridge inspections and estimated costs of bridge replacement and repair. The following recommendations are based on a 10-year program to address the state's major freight routes. It should be noted that additional bridge improvements required for other bridges beyond this 10-year program are not included in this recommendation.

Recommendation 1

Put an investment package into place immediately to begin a strategic repair and replacement program for Oregon bridges. Fixing the interstate and key freight routes is a priority, followed by critical city and county connector routes. A bridge repair/replacement emergency fund should also be established as corridor work progresses.

Recommendation 2

Implement the strategic investment plan in five stages that build on each other over the next 10 years. This will minimize impacts to state and local economies and to users, while maximizing results at lowest costs. This strategy anticipates that ODOT will continue emergency bridge repairs as needed, even as it shifts to a corridor-based approach in implementation. These stages include the following bridge repairs and replacements and emergency bridge funding. They do not include repairs and replacements required beyond the 10 years of this program.

Stage	State Bridges			Local Bridges	Total Cost (\$ million)
	# Bridges Repaired	# Bridges Replaced	Cost (\$ million)	Cost (\$ million)	
1	5	18	60.7	27.3*	88.0
2	36	83	495.8	55.6*	551.4
3	15	89	481.9	37.9*	519.8
4	21	56	193.9	69.1*	263.0
5	10	33	104.9	86.4*	191.3
TOTAL	87 □	279 □	1337.4 □	300* □	1637.2

* To be determined by local government and ODOT based on OTIA III (HB 2041)

Recommendation 3

Numerous strategic and operational changes will also be necessary within ODOT to meet the challenge of maintaining the transportation infrastructure over the next 10 years. This will include reallocating staff to manage and implement this program, pursuing additional funding for future stages, and investing in technology and data storage/retrieval systems to increase efficiency and effectiveness.

BACKGROUND

THREATS TO STATE ECONOMY AND LOCAL COMMUNITIES

Oregon's bridge problem has the potential to cost the state economy as much as \$123 billion in lost production and 88,000 lost jobs over the next 25 years. ODOT is working with the Legislature and stakeholders throughout Oregon to avoid such a major impact. *See Appendix D for the economic analysis. Also see Appendix E for an assessment of non-truck modes as they relate to freight transport.*

The interstates, I-5 and I-84, support commerce throughout Oregon. The Portland and upper Willamette Valley areas account for 75 percent of the state economic production and rely heavily on the interstate system for movement of goods and services. The interstate and U.S. highway systems in Oregon not only facilitate trade within Oregon, but also are an integral part of the North American trade network. *See Appendix D for discussion of Oregon's role in international trade.*

The remaining 25 percent of Oregon's economic production occurs in areas removed from the interstate highways. Deteriorating bridges in these areas are a serious threat because businesses in rural Oregon tend to rely more on heavy goods including timber, minerals, and agricultural products. Such heavy commodities already demand high transportation costs. Any increased cost brought about by truck detours or load limits will erode what is in many cases a slim profit margin. Heavy loads that cannot be divided are essentially "land-locked" if they cannot cross restricted bridges.

In addition to the potential economic cost, the bridge problem poses a threat to the livability and safety of many communities throughout Oregon. Canyonville, John Day, Mt. Vernon, Sauvie Island and other Oregon communities have already experienced what is called the "Riddle Effect." *See Appendix F for a summary of community impacts of recent bridge restrictions.* The "Riddle Effect" will happen with increasing frequency as bridges continue to age and crack.

In the past few years, the decline in the condition of Oregon's bridges has accelerated:

- In 1997, there were 42 bridges with load restrictions, but none required emergency repairs to avoid economic damage.
- In 2000, ODOT had 49 bridges with load restrictions, 35 more under evaluation and had to initiate 13 emergency repairs.
- In 2001, ODOT had 68 bridges with load restrictions, conducted 18 emergency repairs and had another 555 bridges under evaluation for cracking.
- By 2010, ODOT expects that 30 percent of state bridges will have weight restrictions and corresponding truck detours.

The Portland metropolitan area and the Willamette Valley represent the economic heart of the state. Their connection to ports and markets within Oregon and with neighboring states is vital to

the state's economic health. The backbone of that connection is the interstate system. Two-thirds of the state's economic benefit can be derived by connecting I-84 and I-5 to Portland. Therefore, restoration of I-5 and I-84 as unrestricted freight routes must be the ultimate goal of a bridge replacement strategy.

At the same time, it is imperative that other areas of the state continue to have unrestricted access for movement of goods and services. Given the nature of the heavy goods moved in rural Oregon and the importance of these goods to the local economy, it is important to maintain key freight routes across the state.

The bridge improvement strategy must address both these critical needs in a timely manner. Because the majority of the problem bridges lie on I-5 and I-84, the time required to address them and the costs associated with those two interstate routes (approximately \$1 billion) make them problematic as a first step. Additionally, the local economies along the coast and in Central and Eastern Oregon would continue to suffer for many years because they would not have access to the interstate system for their materials and products without improvements to local freight routes. Alternative east-west and north-south routes that can be improved quickly and at least cost can serve as detour routes for subsequent stages of the work to restore the interstate system. Recommendation 2, found in the recommendations section, outlines the five-stage approach to implementation.

Expenditures to repair or replace components of the transportation infrastructure serve two purposes. The investment in state and local bridges maintains accessibility, avoiding loss of jobs and productivity growth in the long term as identified by the economic model. Additionally, the actual construction dollars spent on bridges throughout Oregon will also sustain family-wage jobs in the near term. These jobs, in turn, generate income that is spent on goods and services and income taxes for the General Fund. This near-term economic stimulus was not evaluated by the statewide model. A general guideline of near-term Oregon revenue and jobs that would be supported by constructing various portions of the recommended bridge investment strategy is shown on Figure 1 at the end of this report.

GROUPS CONSULTED

Several stakeholder groups participated with ODOT staff to develop these recommendations. A wide range of perspectives was sought because the bridge problem affects many parts of the state infrastructure and economy. Stakeholders included American Automobile Association (AAA) and the Oregon Trucking Association (OTA). Local bridges are also at risk and the Association of Oregon Counties (AOC) and the League of Oregon Cities (LOC) were partners in providing local bridge information and in developing this recommendation. *See Appendix G for the Local Community Bridge Survey and results.* The Federal Highway Administration (FHWA) provided suggestions and information from other parts of the country that are also beginning to experience this problem.

To gather the perspective of freight carriers, ODOT conducted interviews with a representative sample of motor, marine, pipeline and rail freight carriers. Manufacturers of large indivisible loads were also interviewed to determine concerns and how they would likely respond to bridge restrictions. *See Appendix H for the results of these interviews.*

A meeting was held with representatives of the trucking industry to discuss priority corridors for bridge replacement. The following principles of prioritization were recommended, understanding that specifics may change with new information:

- Keep a north-south and east-west backbone open to 105,500 lb. loads at all times.
- Fully restore this backbone in the quickest and cheapest manner. This may require improvement of detour corridors first.
- Once the backbone is in place, focus on reaching population centers and on bridges that have no good detour routes.
- Consider truck height, length, width and weight when designating detours.
- Coordinate multiple bridge construction and maintenance work to minimize construction disruption.
- Prepare a long-range plan for all bridge construction to allow business to do long-term planning

Within ODOT, region staff as well as the Bridge Section, Planning Section and Office of Project Delivery, were key to the process. Agency employees throughout the state have hands-on knowledge of highway system operations and relationships with the local interests who depend on the bridges.

In addition to gathering information from people and groups, the team used economic modeling to gather data about the economic impacts of each freight route and proposed courses of action. A subgroup of the Oregon Modeling Steering Committee (OMSC) reviewed and made suggestions on model parameters and provided comment on the reasonableness of results.

RECOMMENDATIONS

The Oregon Transportation Commission (OTC), the Governor and the Legislature have placed increasing priority on the bridge program and have shifted funds in that direction over the last four biennia. The 2003-2005 bridge budget request is well over a 100 percent increase above the 1997-1999 Biennium. The percentage of the ODOT Highway Fund budget allocated to the bridge program has more than doubled in the same period. Although there are other priority areas, this component of the ODOT budget increased more in percentage terms than any other major element of the budget, maximizing the level of support for bridges within current revenues.

ODOT and its local city and county partners estimate that it will take approximately \$4.7 billion to replace or repair all state and local problem bridges in the state. The magnitude of the problem is such that efforts by the OTC and ODOT to redirect existing resources to the bridge problem are insufficient to make a significant impact on what needs to be done to forestall economic impacts to state and local economies caused by inadequate bridges.

In determining how and in what order to address the massive problem, the ODOT Economic and Bridge Options Team (EBOT) considered the findings of the economic modeling process, the number of problem bridges on each road corridor and cost to address, and the needs of heavy freight haulers including over-dimension and over-weight loads. EBOT members worked with the owners and users of the system, including counties, cities, FHWA, OTA, AAA and others. The data and input received led the EBOT to recommend that the first priority be to restore north-south and east-west freight routes as quickly and cost-effectively as possible to maintain routes that are free of weight restrictions for freight to move across the state. Following are the recommendations formulated through this process.

Many important bridges in Oregon will not be funded under this recommendation. To address emergencies that arise on these bridges, funds will be needed for short-term repairs. This will ensure that bridges can accommodate traffic until funding for more permanent repairs is available. Although planned repairs will only occur if they will last 10 years and will support loads of at least 105,500 lbs., emergency repairs are likely to be less stringent. In some cases they may only be able to accommodate 80,000 lb. loads. These emergency funds will be used on an as-needed basis until they are depleted. Any excess emergency funds will be applied to planned investment in subsequent stages.

RECOMMENDATION 1

Put an investment package into place immediately to begin a strategic repair and replacement program for Oregon bridges. The following priorities should guide this investment:

- Fix the interstate freight routes to keep heavy trucks on the interstate and off local roads and streets.
- Fix important freight routes that need only minor amounts of improvements.

- Fix economically critical city and county bridges as they connect directly to each recommended stage.
- Develop a funding strategy that will allow sufficient funds to be available to address emergency repairs or replacement of bridges that have an impact on economic vitality, while the corridor work progresses.

RECOMMENDATION 2

Implement the strategic investment plan in stages that build on each other over the next 10 years. This will minimize impacts to state and local economies and to users, while maximizing results at lowest cost. Funding for bridge emergencies will play a key role in keeping Oregon’s economy moving. However, there may be some routes that are less important to the economy that will see load-restricted bridges for the duration of this strategy in order to maximize resources for more important routes. The amount needed for emergency spending is identified for each stage and will decline as restoration of all bridges in each corridor is complete.

The recommended stages are outlined below and are shown on Figure 2 at the end of this report. The total cost to address the full state and local bridge problem is estimated at \$4.7 billion. This recommendation is a less costly 10-year program to correct the deficiencies on the most important freight routes and the local bridges that support these routes. Several more stages and additional funds are required in the long term to address the entire state and local bridge problem. *See Appendix I for detailed information on each bridge in each roadway segment.*

Stage 1. Open two border-to-border routes for heavy loads while interstate highway bridges are under construction and/or remain load-limited. This stage can be accomplished with known current revenue by redirecting resources and using innovative financing options. All subsequent stages will require new revenue. Road segments include:

Road Segment	# Bridges Repaired	# Bridges Replaced	Cost (\$ million)
Fix US 26 from I-205 to Madras	2	1	16.7
Fix Hwy. 97 from Madras to CA	1	5	49.1
Fix Hwy. 20 from Bend to Ontario	2	12	2.9
TOTAL	5	18	60.7

Stage 1 creates unrestricted north-south and east-west freight routes that will serve as alternate routes when work begins on the interstates. The number of state and local bridges addressed in this stage is relatively low. This provides the maximum freight mobility as quickly as possible at least cost.

Stage 2. Begin work on the interstate system. Fix Hwy 58. Road segments include:

Road Segment	# Bridges Repaired	# Bridges Replaced	Cost (\$ million)
Fix all of I-84	12	38	215.6
Fix all of OR 58	3	8	36.3
Fix I-5 (Salem to OR 58)	18	35	231.3
Fix I-5 from I-205 to Salem	2	2	12.6
TOTAL	35	83	495.8

This stage would be the first to begin directly addressing the interstates, which are the backbone of our state economy and serve national defense purposes. It completely fixes I-84 and addresses I-5 from the I-205 interchange to Eugene. In addition, it would improve Hwy 58, an important alternative route for the southern portion of I-5.

Stage 3. Complete work on I-5. Roadway segments include:

Road Segment	# Bridges Repaired	# Bridges Replaced	Cost (\$ million)
Fix I-5 from OR 42 to California	6	45	244.9
Fix I-5 from OR 58 to OR 42	9	44	236.9
TOTAL	15	89	481.8

This phase completes the work on the interstate, the backbone of Oregon's freight network.

Stage 4. This stage improves vital freight routes that connect to the interstate. It improves connections between Astoria, Newport and Coos Bay and I-5. Fix US 395 and finish work on US 97. Fix other segments in central and eastern Oregon. Roadway segments include:

Road Segment	# Bridges Repaired	# Bridges Replaced	Cost (\$ million)
Fix all of OR 42	5	12	67.9
Fix US 97 (Madras – Biggs)	1	3	5.7
Fix OR 19/OR207 (Service Creek - Spray)	0	5	4.9
Fix OR 19 (Spray – US 26)	0	2	4.1
Fix US 20 (I-5 – Newport)	8	6	33.7
Fix OR 38 (I-5 - US 101)	0	6	23.4
Fix OR 7 (I-84 – US 26)	0	2	2.1
Fix OR 82 (I-84 – Enterprise)	4	4	19.9
Fix US 30 (Astoria – Longview Bridge)	1	5	15.7
Fix all of US 395 (except US 20)	1	10	14.9
Fix all of US 95	1	0	1.0
Fix all of OR 31	0	1	0.4
Fix all of I-205	0	0	0
Fix I-82 (I-84 – WA Border)	0	0	0
Fix OR 140 (I-5 – US 97)	0	0	0
Fix OR 19 (Arlington – Service Creek)	0	0	0
Fix OR 207 (Heppner – Spray)	0	0	0
Fix OR 216 & US 197 (US 26 – Maupin – The Dalles)	0	0	0
Fix all of OR 217	0	0	0
Fix all of OR 218	0	0	0
Fix US 26 (Prineville – Madras)	0	0	0
TOTAL	21	56	193.9

Fixing Hwy 42 from Roseburg to Coos Bay and Hwy 38 from I-5 to Hwy 101 provides heavy-haul access to the Port of Coos Bay.

Stage 5. In the previous four stages, each route was improved to be able to carry all truck traffic including special permit loads. This stage only improves these routes to 105,500-lb capacity. This will be done to reach as many communities as possible and maximize the dollars available. Fix Hwy 126 connection between Eugene and US 97 and Hwy 126 connection between Eugene and Florence. Fix US 199 and US 126 between Prineville and Ontario. Complete connection between Portland and Astoria. Roadway segments include:

Road Segment	# Bridges Repaired	# Bridges Replaced	Cost (\$ million)
Fix OR 138 (I-5 – US 97)	1	2	9.4
Fix US 26 (Prineville – Ontario)	1	9	9.1
Fix US 199 (I-5 – CA Border)	1	2	7.4
Fix OR 126 (Eugene – US 97)	2	1	5.3
Fix OR 6/US 26 (US 101 – Portland)	1	8	40.9
Fix US 30 (Portland – Longview)	0	1	4.6
Fix OR 62/OR 230	0	1	3.5
Fix US 20 (Sweet Home – Clear Lake)	0	1	2.6
Fix all of Territorial Hwy	1	2	2.5
Fix OR 126 (Florence – Eugene)	1	3	16.5
Fix OR 244 (Ukiah – I-84)	1	0	1.0
Fix all of OR 78	0	1	0.6
Fix all of I-405	0	0	0
Fix OR 126 (Redmond – Prineville)	0	0	0
Fix OR 34 (Ukiah – I-84)	0	0	0
Fix OR 34 (I-5 – Sweet Home)	0	0	0
Fix OR 74 (I-84 – Heppner)	0	0	0
TOTAL	10	33	104.9

<p>TOTAL estimated cost for Stages 1 through 5 = \$1,337,344,000 Emergency Funding if all Stages are constructed = \$300,000,000</p>

RECOMMENDATION 3

Even with a significant investment in bridges, the next 10 years will be very challenging to manage the increasing number of deteriorating bridges in Oregon. *See Appendix J for an outline of ODOT’s Bridge Project Delivery Plan and Appendix K for proposed changes in ODOT operations.* The following specific strategic and operational changes are recommended to help ODOT navigate these challenges.

1. Start implementing Recommendation 2:

- Advance all bridge projects in the 02-05 Statewide Transportation Improvement Program (STIP).
 - Advance environmental permitting and design on all bridge work in the Draft 2004-2007 STIP that is consistent with Recommendation 3.
 - Immediately begin environmental permitting and bridge scoping on bridges in Recommendation 2, starting with Stage 1.
2. Pursue additional federal and state funds for stages 2-5.
 3. Work with FHWA and permitting agencies to approve a programmatic approach rather than project-by-project approaches to bridge replacements.
 4. Consider proactively restricting bridges that have low priority if research shows that it will extend their useful life.
 5. Focus future ODOT investments on the routes in stages 1-5. In particular, ODOT's preservation, modernization and operation programs in the STIP should be used to ensure that these routes are able to accommodate heavy-haul and over-dimension trucks.
 6. Reallocate internal ODOT resources to provide a more concentrated focus to the bridge issue.
 - Consider the proposal to create a new Bridge Program Unit to enhance ODOT's ability to perform predictive analysis on rapidly deteriorating state and local agency bridges.
 - Reallocate 18 staff positions and \$1.5 million per year to provide more frequent bridge inspections and bridge maintenance support to continue to ensure the safety of the traveling public.
 7. Provide resources to bolster infrastructure preservation activities performed by Motor Carrier Transportation Division (MCTD).
 - Redeploy 16 existing ODOT staff to MCTD to function as Motor Carrier enforcement officers. This will bolster the availability of staff to protect fragile bridges statewide as construction and/or emergency situations dictate and allow retaining existing officers for highway use tax collection and truck safety program efficiency.
 - Redeploy six ODOT staff to enhance the over-dimension permitting function. This will ensure public safety as oversize loads move on detours resulting from planned construction and emergency closures. It is estimated that two additional permit analysts are required for every five bridges requiring detours on any of Oregon's major routes.
 - Earmark \$450,000 to acquire and operate six dual direction temporary data collection and mobile warning systems. This will achieve rapid deployment and reduce reliance on officer-based monitoring efforts.
 - Make an initial investment of approximately \$1.2 million in programming, hardware and staff training to create and maintain a link between load permitting and bridge management sections of ODOT. Neither the ODOT bridge staff nor the Motor Carrier permit and detour staff is able to provide a comprehensive history of loads that have gone over a particular route nor a projection of heavy loads that will use that route. The existing text-based routing databases were intended to process permits, not to document use of bridges or road segments.

ECONOMIC EFFECTS OF RECOMMENDATION

The estimated near-term economic benefits resulting from investment in Oregon bridges is shown in Table 1. This includes the cumulative effects on jobs, related income and resulting general fund revenues.

Table 1
Estimated Near-Term Economic Stimulus
from Bridge Investment Expenditures

Cumulative Stages	Cumulative Expenditure (\$M)			Construction Expenditure Effects		
	Planned	Emergency	Total	Jobs	Income (\$M)	General Fund Revenue (\$M)
Stages 1-5	1,637	300	1,937	36,803	1,028	115
Multiplier Factors/\$1M expenditure				19	0.531	0.0593

Notes: Stage 1 reallocates existing funds. Emergency funds are assumed to either be spent or applied to bridges in the subsequent stage. Costs assume bridges are constructed today in 2002\$.

Source: Multipliers from "Economic Impact of Highway Funding Expenditures," prepared by D.D.Hovee & Company and BLS

ADDITIONAL INFORMATION

Several questions have been raised by stakeholders and interested parties during development of this report. *See Appendix L for responses to frequently asked questions* regarding Oregon's bridges, ODOT MCTD requirements and the integrated statewide model.

Figure 1
Recommended Stages of Bridge Improvements

