Opportunities for Increased Efficiencies and Service Improvements at the Ohio Department of Transportation

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Synopsis

This paper identifies cost savings and efficiencies available to the Ohio Department of Transportation (ODOT) based on reviews of neighboring states' departments of transportation, with specific attention to West Virginia and analysis of recent performance audits conducted by the Ohio Auditor of the State (AOS). These recommendations build upon current innovative efforts underway at the Department, with the aim of outlining potential paths forward for ODOT and further increasing the effectiveness and efficiency of its operation in the 21st century.

Introduction

The Ohio Department of Transportation (ODOT) is responsible for the construction, reconstruction and maintenance of 39,735 lane miles.[1] These lane miles consist of all U.S. interstates (e.g. I-70), and U.S. and state routes and highways (e.g. US Rt. 30, SR 315) in unincorporated[2] areas. Although ODOT handles major bridge repairs on U.S. and state routes within municipalities, another 9,343 lane miles of State and U.S. highways pass through a city or village and are maintained by that municipality.[3]

Table 1: ODOT Responsibilities[4]

Highway type	Lane miles
State Routes and Highways	24,904
U.S. Routes and Highways	8,096
Interstate Highways	6,735
Total	39,735
Total including roads ODOT maintains for villages through consent ordinances	42,090

As provided for under the Ohio Revised Code (ORC), ODOT divides the state into twelve districts to facilitate service provision;[5] most other states likewise have DOT maintenance districts or regions. Although the ORC does not direct ODOT to establish county-level offices, there is an ODOT county headquarters in each of Ohio's 88 counties, and many counties also have one or more garage outposts, resulting in a total of 226 ODOT facilities across the state.

Map 1: U.S. Interstates and Highways (not all state routes visible) for which ODOT provides services

Map courtesy of ODOT.[6]

ODOT and Local Roadway Responsibilities

Originally established in 1902 to serve as an advisory resource to counties and municipalities as they constructed roads, Ohio's State Highway Department became responsible in 1912 for the construction and maintenance of statewide routes. By the 1950s, ODOT was building hundreds of miles of state and U.S. highways and interstate lanes. In 2006, Ohio had the fourth largest interstate system nationwide, based on the number of interstate miles located in the state.[7]

While Ohio's roadway infrastructure was transitioning from a series of poorly paved tracks to an integrated roadway system, discussions about municipal "home rule" were present in the General Assembly and in local city and village council meetings.[8] One result of the move to strengthen municipal home rule was that the General Assembly determined that cities and villages were responsible for (including bearing the costs of) the maintenance of the stretches of state and U.S. highways located within municipal boundaries.

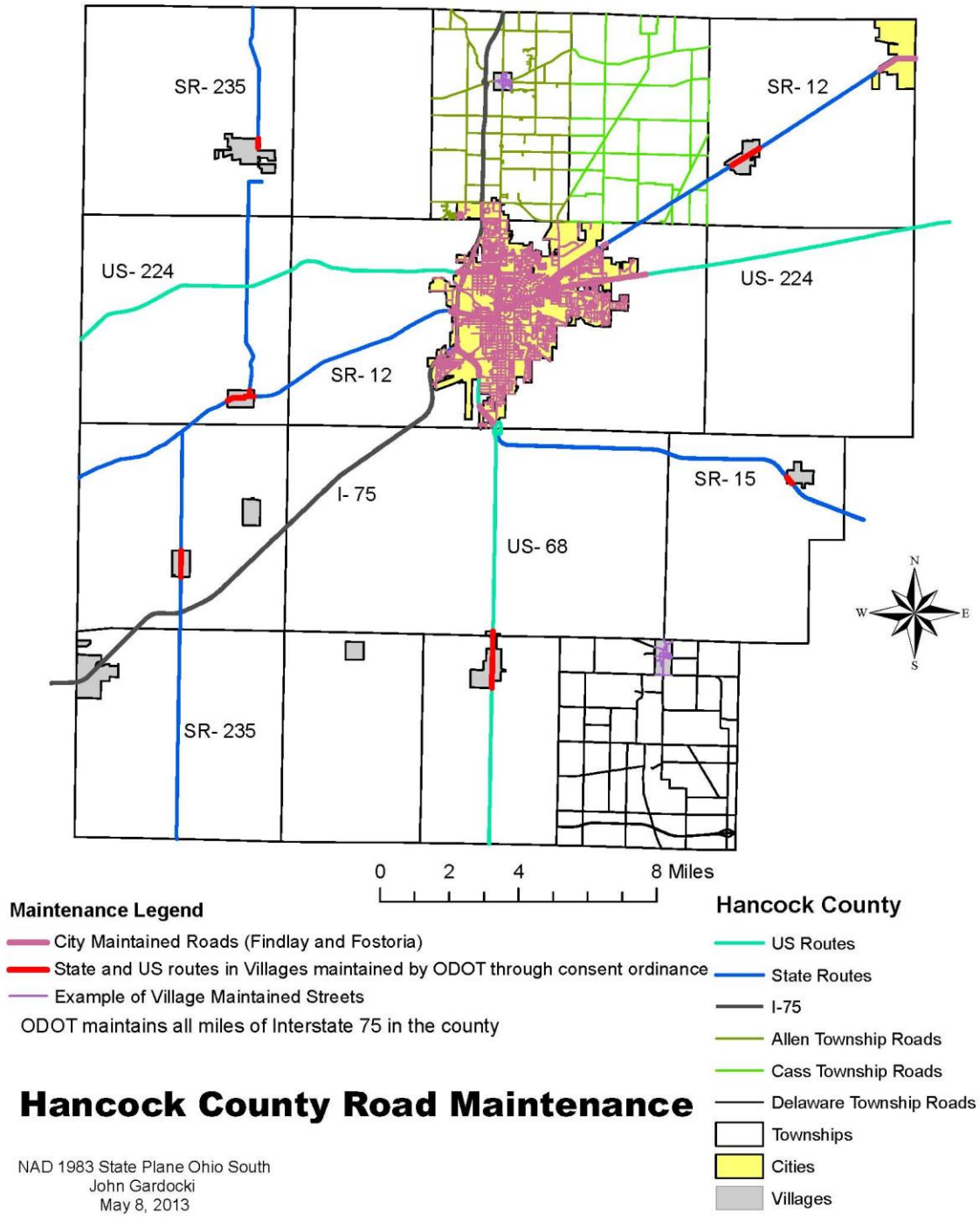
Although ODOT is not responsible for state and U.S. highways in cities and villages, the ORC allows ODOT to take on maintenance and snow removal responsibilities in villages through consent ordinances.[9] Today, most villages have consent agreements with ODOT for light maintenance and snow removal. [10] The ORC does not make consent ordinances available to cities. (See "Map 2: Roadways in a typical county" for a visualization of the different government entities responsible for local, county, state, and US routes and interstates.)

However, "agility agreements" between ODOT and cities and counties have begun to allow ODOT and local governments the flexibility of sharing snow removal and maintenance responsibilities. For example, ODOT District 4 maintains 4.94 lane miles within the city of Youngstown while the city maintains 4.29 miles of ODOT routes. Similarly, ODOT District 3 maintains 54.51 lane miles within various municipalities while those municipalities and townships maintain 169.34 lane miles of ODOT District 3 routes. Recent amendments to the ORC allow ODOT to enter into maintenance contracts with political subdivisions,[11] such as cities and counties, although it is unclear whether cities and counties can transfer all highway maintenance responsibilities to ODOT or vice versa.[12]

There is also some cooperation among ODOT districts. For example, ODOT records show that District 12 provides snow and ice removal services for 7.17 lane miles of District 3 routes and District 6 maintains informal snow and ice removal arrangements with ODOT Districts 3, 5, and 7.[13]

Given the number of lane miles that exist in Ohio, and the multiple jurisdictions that oversee county and state routes, U.S. highways and interstates, there are many opportunities to develop additional agility agreements and other cooperative relationships for road maintenance and repair between ODOT and local governments.

Map 2: Roadways in a typical county. *ODOT is responsible for all state routes (blue) and U.S. routes (teal) except for those sections that pass through a city. Cities (yellow) maintain all roadways within their boundaries (pink), except interstates (gray). Villages (lilac) maintain their own local roads (purple), but ODOT can maintain state and U.S. routes in villages through consent ordinances (red). County engineers are responsible for county roads (lime green, olive green, dark gray) and often manage township roads on behalf of local townships trustees.*



Part I: Scan of Neighboring States' Infrastructure Systems and Departments of Transportation

In contrast to the way Ohio's highway infrastructure is administered, a number of other states take a more centralized approach to road maintenance that supersedes the jurisdiction through which the state route, U.S. highway or interstate passes. For example, among Ohio's neighbors, Indiana's DOT and Kentucky's Transportation Cabinet are responsible for state roads, interstates and U.S. routes, including overpasses and ramps, regardless of the jurisdictions through which the routes or interstates pass. In both Indiana and Kentucky, cities, counties, and towns are "responsible for all other roadways that are not a state road, interstate or U.S. route."[14]

West Virginia's highway administration is even more centralized. WVDOT is responsible for almost all local roads and state and interstate highways in the state and manages highway maintenance through close coordination at the state level. Because WVDOT manages a wider range of roadway types, including highways similar to Ohio's but at equipment utilization rates that are much more efficient than Ohio's, elements of its administrative strategy can serve as a useful inspiration for ODOT. Although Ohio's roadways are more heavily used and contain more bridges than West Virginia's, WVDOT maintains a wider range of road type and faces greater topographical stresses from its mountains than ODOT. There are enough differences between West Virginia and Ohio to prohibit "apples to apples" comparisons, but incorporating components of WVDOT's administrative system could help ODOT improve service efficiencies and achieve cost savings.

West Virginia Department of Transportation and its Operations

WVDOT Serves as County Engineer

In contrast to Ohio, West Virginia townships and counties do not have authority over road maintenance, nor are there county engineers. Instead, WVDOT has ten multi-county districts that are responsible for all township and county road and highway maintenance, along with the bridge and engineering duties carried out in Ohio by county engineers. WVDOT is responsible for a total of 71,219 road miles. WVDOT activities in each county are managed by a Highway County Administrator (not an engineer) who reports directly to a WVDOT District Maintenance Engineer. As in Kentucky and Indiana, incorporated municipalities (cities, towns and villages) in West Virginia maintain responsibility for the local streets within their jurisdictions.

Comparing Ohio and West Virginia roadways

West Virginia has a population of 1,852,994 and land area of 24,038, which averages 77.1 persons per square mile. While overall population density varies widely across counties, West Virginia is the 29th most densely populated state in the US.[15] Ohio, on the other hand, is larger in both population and land size, with 11,536,504 people and 40,861 square miles, and has total population density of 282.3 persons per square mile., placing it 10th among the 50 states.[16]

Certainly WVDOT and ODOT maintain different types of roads and geographies. West Virginia is much more mountainous and rural, and so has many two lane roads, which account for 94% of its total lane miles. As the second most urban state in the nation (tied with Florida), Ohio has multi-lane roads and highways to accommodate its population. Although WVDOT has fewer drivers and more freeways, which leads to less stress on its roadways, WVDOT does maintain 29,129 more lane miles than ODOT and is responsible for interstate, state, and county roads and highways whereas ODOT maintains only state highways and interstates. Despite differences in jurisdictional authority and scope of work, WVDOT is able to provide quality service with a significantly smaller fleet than ODOT.

WVDOT Equipment Mainframe

To effectively manage road repair and maintenance across the state, WVDOT has established a central equipment division in the capital city of Charleston that continually monitors the entire WVDOT equipment inventory. This "mainframe" logs the following indicators for all 4,000 pieces of equipment owned by WVDOT: real-time GPS location, usage rates, maintenance records, overall wear and tear, and operational history. This fine-grained information helps guide WVDOT purchasing decisions by providing clear information on current inventories and by anticipating future needs on a statewide basis.

More importantly, this "mainframe" makes it possible for WVDOT staff in the central office, district headquarters, and county administrative offices to see instantly where equipment is currently located in the state and place requests for equipment. WVDOT equipment regularly travels across county boundaries and WVDOT district boundaries. Furthermore, each WVDOT district is equipped with transport equipment to facilitate the movement of equipment between WVDOT districts. Thus WVDOT districts serve more as administrative units than as designated maintenance areas.

Part II: Demonstrating Potential Statewide Efficiencies and Cost Savings

While an exact replication of the WVDOT system or that of another state's transportation department is not legally or politically feasible for Ohio, the following changes in ODOT's operations, inspired by features of WVDOT's more centralized system, could result in substantial cost savings.

Right-Sized ODOT Fleet

The operations of the 12 semi-autonomous ODOT districts have brought about an oversupply of underutilized equipment. Because ODOT's equipment needs are so extensive and specialized, ODOT has greater autonomy and authority over fleet purchasing than other state agencies, which are statutorily bound to place fleet purchase requests directly with the Department of Administrative Services.[17] Additionally, much of ODOT's purchasing has been in the hands of the districts, rather than centralized within the Department itself, so there are cost savings to be realized in increasing efficiencies in equipment purchasing and use. As the Auditor of State

(AOS) has noted, "putting decision-making power in the [twelve ODOT] districts rather than in a single authority leads to variation in process that reduces overall efficiency and effectiveness of management."[18]

Two separate AOS audits of ODOT's equipment inventory show that much equipment is underutilized and that significant improvements in equipment utilization can be achieved.[19] For example, of 424 pieces of ODOT-owned heavy equipment audited by AOS, 178 (42%) were used less than 5% of their operational time, adjusted for seasonal use.[20] Measured another way, ODOT owns one piece of equipment for every 2.5 miles of road it maintains. By comparison, WVDOT has one piece of equipment for every 17.8 miles of road it maintains.

Table 2: State Road Maintenance Equipment Efficiency by Lane Miles Maintained

Agency	Total Lane Miles Maintained	Total Units Highway Maintenance Equipment Owned by Agency	Total Lane Miles/Total Equipment
ODOT	42,090	16,553	2.5
WVDOT	71,219	4,000	17.8

Source: ODOT (2011)[21] and WVDOT (2013)[22]

ODOT has begun to impose restrictions on purchasing new fleet and heavy equipment, which will assist the Department in ensuring that existing resources are fully utilized.[23] The AOS estimates that the one-time sale of underutilized ODOT equipment could generate $6,950,000 in savings and avoid another $4,059,000 in maintenance costs over ten years.[24]

Centralized Fleet Information and Coordinated Fleet Purchases and Use

Centralizing fleet and equipment information into one data system would help ODOT avoid redundant purchases in the future. The AOS estimates the cost avoidance of redundant purchases to be $8,370,000 over ten years.[25]

To avoid duplicative purchases, ODOT has already begun to centralize the purchasing of dump trucks, "so [ODOT will] have a systematic, standardized process that will reduce how much we spend while making sure [the] fleet is in good shape."[26] Additionally, ODOT is currently in the process of adopting "AgileAssets" a master equipment inventory data management system.[27] Idaho Transportation Department and North Carolina Department of Transportation have utilized this system to streamline their purchasing and asset management system, as well as identify performance measures.[28] Capital costs related to building this computer system and providing ongoing maintenance and operation are much smaller than the estimated future costs of the continued purchasing and maintenance of redundant equipment.

A centralized mainframe will facilitate sharing across ODOT districts. Practice, not policy, historically has prevented significant equipment and supply sharing or cross-jurisdictional movement, although ODOT is now beginning to take steps to "de-silo" its individual districts.[29] For example, ODOT pooled salt bids for an annual savings of $10 million in 2013 and has contracted a third party manager that will centralize the purchase of equipment parts and save

the department $7 million annually.[30] Centralizing purchases should improve ODOT's administrative operations because, as the State Auditor has written, "opportunities to share vehicles and equipment across districts and counties may have been lost because of the lack of a centralized perspective from which to examine such opportunities. Such lost efficiencies may contribute to low utilization and the maintenance of a larger fleet than necessary."[31]

In West Virginia, equipment is shared seamlessly across its ten districts and 55 counties. The mainframe is a critical tool in understanding and appropriately responding to the different equipment needs at the local, county, regional, and state level in West Virginia. It is also part of what makes possible West Virginia's much higher usage of equipment as demonstrated by the miles: to equipment ratio.

Increased Administrative Efficiencies

Historically, ODOT has relied heavily on labor intensive, manual processes instead of technological and computer-based systems to manage labor, equipment, and materials data collection,[32] and real estate records paperwork.[33] Recent strategic planning efforts to reduce inefficiencies in data recording and management at ODOT are likely to produce savings in printing costs equivalent to $64,900 per year, in addition to improved overall agency function as more time will be spent on core service areas.

ODOT's transition to greater administrative efficiencies is due, in large part, to the adoption of hand held devices that track, in real time, necessary information pertaining to complex highway operations such as work plans, instructions, material and parts lists, project status updates, and maps. Agency professionals expect reductions in waste from paperwork and improved decision-making based upon better data to be "transformational" for ODOT. However, greater efficiencies and cost savings will be achieved in other areas, especially of fleet maintenance as discussed above.

Table 3: Summary of Statewide Savings in Process (2013-2014)

Pooled salt bids	10,000,000
third party parts manager	7,000,000
total savings from centralizing supply purchases for 2013-2014	**$17,000,000**

Table 4: Summary of Potential Future Statewide Savings (2013-2023)

profit from sale of underutilized equipment	6,950,000
avoided maintenance costs over 10 years	4,059,000
avoided redundant purchases over 10 years	8,370,000
avoided printing and administrative records costs over 10 years	6,490,000
total savings from right sizing fleet and records over 10 years	**$25,869,000**

Part III: Recommended Steps

GOPC's analysis of the West Virginia roadway maintenance system, alongside the ODOT equipment utilization studies produced by the AOS and recent collaborative projects submitted to the Ohio Local Government Innovation Fund for consideration, suggest several strategic efforts and models for ODOT, or policy changes, which could help the department achieve greater efficiencies, save costs and improve service. The recommendations below offer several different directions ODOT could pursue:

- **Create Permeable ODOT County and District Boundaries.** It is clear from the AOS performance audits and from the efficiencies achieved by WVDOT that ODOT's district boundaries must become more "permeable." In the majority of situations, costs associated with transporting equipment from one district to another would be lower than the capital purchase of new district-specific equipment. GOPC's research brief *Transportation Facility and Equipment Sharing: Integration Efforts between County and ODOT* also highlights the cost savings achievable through right-sizing ODOT's facilities distribution across the state. Director Wray testified in February 2013 that "districts are now sharing these [equipment and fleet] resources in an effort to more efficiently use our heavy equipment statewide."[34] Building upon those initial efforts, ODOT is primed to make ODOT county and district boundaries more "permeable" for equipment, supplies and staff. Reforms to intra-agency operations can be undertaken at the discretion of ODOT.

- **Require Explicit Coordination at the ODOT District Level.** WVDOT District Administrators have closer oversight of activities occurring at the local and county level than ODOT Administrators, which leads to regional decision-making and greater regional efficiency in West Virginia. In Ohio, the multiple levels of ODOT offices and the existence of the county engineers make it difficult to develop and implement region-wide or district wide plans. Along with regional planning organizations, ODOT District offices are naturally suited to proactively undertake regional land use and transportation planning that incorporates local, county and district needs. ODOT District offices should take a stronger lead in doing so. Such changes are currently underway at ODOT and should continue to be supported by senior administrators.

- **Integrate Fleets and Implement Cooperative Agreements with County Engineers and Select Local Governments.** Equipment utilization studies conducted by AOS suggest that there is significant equipment overlap between state and local highway maintenance entities. For example, in Lake County alone, local governments own sixteen front end loaders—the county engineer owns two and townships and municipalities own fourteen.[35] The twelve front end loaders with adequate operational data are used less than 22% of their potential operating time. In other words, three-fourths of the time this locally-owned highway equipment is not in use. Lake County is within ODOT District 12, which utilizes six ODOT facilities for three counties and stores a total of 15 front end loaders.[36] Lake County ODOT facilities use four of these front end loaders for a variety of

road maintenance duties, including snow removal services (ODOT Cuyahoga County uses 7 and ODOT Geauga County 4 of the District's front end loaders).[37] In sum, there are 20 front loaders in Lake County that are owned by ODOT, county, township or municipal governments.

The AOS estimates the average savings achieved through the sale of one front loader would be $21,200 in a one-time auction and $1,240 in annual direct maintenance parts cost avoidance.[38] Adjusting equipment inventory to equipment demand to achieve an 87% utilization rate, Lake County governments could eliminate twelve loaders for a savings of $269,280. Assuming ODOT retains its own fleet then local equipment sharing with ODOT at one of their three ODOT facilities would provide critical support in this transition.

Consent ordinances already coordinate ODOT and village responsibilities for state and interstate highways. ODOT and city and county governments can take greater advantage of cooperative agreements and agility agreements to coordinate equipment usage. All local governments and ODOT districts have the ability to sell underutilized equipment.

- **Implement Intelligent Routing and Cooperative Cross-Jurisdictional Maintenance.** To ensure service quality does not suffer with the reduction in equipment, ODOT district offices and ODOT county offices can work more closely with local governments to determine intelligent service routes. For example, with fewer front loaders, fewer salt trucks will be able to be loaded when a snow or ice storm occurs. More closely coordinating equipment and the dispatch of equipment among ODOT, county engineers and municipalities will be one way to ensure that all salt trucks are loaded in a timely fashion.

  A more effective way to deliver salt and other services may be to have ODOT and county engineers coordinate salting routes with townships and municipalities so that piecemeal, patchwork salting is eliminated and local entities work regionally to deliver needed ice control services. Agility agreements, cooperative agreements, and contracts between ODOT and local governments should be able to formalize service quality and delivery expectations for all parties involved with intelligent routing.

- **Transfer ODOT county-level responsibilities to County Engineers via cooperative agreements and retain ODOT district administrative offices.** One reason that intelligent routing has not occurred on as wide of a scale as might be expected is because of the multiple layers of government that exist at the local level. One way to streamline service delivery on Ohio's transportation infrastructure and public works system could be to transfer ODOT county-level responsibilities to the county engineer.

  While the ORC directs the establishment of ODOT districts and permits ODOT's Director to deputize directors for each district, ODOT is not required to establish county offices.[39]

Amendments to ORC 9.482 would need to be made to clarify that state agencies may enter into contract with political subdivisions and transfer all responsibilities to ODOT or vice versa, as is constitutionally allowable. [40]

In Ohio, county engineers, an elected office, already carry out many of the functions that the WVDOT County Administrator serves. Transferring ODOT county-level responsibilities to county engineer offices would mean that the county engineer would perform engineering duties as outlined by the Ohio Revised Code and take on the responsibilities that ODOT district offices require. As the maps in GOPC's research brief *Transportation Facility and Equipment Sharing: Integration Efforts between County and ODOT* show, there is at least one ODOT facility and one county engineer facility in each county and in many counties multiple facilities are managed by each. These facilities—and the equipment housed at the facilities—could be made wholly available to county engineers. Redundant facilities could be eliminated and excess equipment sold. Contracts between ODOT and county engineers would detail compensation and fee schedules, equipment and facility usage, and other terms of the transfer of roadway responsibilities.

If ODOT were to contract with the county engineers for ODOT's county-level needs, the county engineers would continue to manage 29,088 lane miles and take on ODOT's 42,090 lane miles for a total of 71,178 miles of interstate, state and county roads.[41] There is already existing demand at the county-level for the engineer's equipment, but Ohio's current equipment utilization levels and the equipment utilization strategies by WVDOT suggest that the engineers could take on these additional responsibilities with relatively few equipment purchases or new third-party contracts. The cost to purchase or rent, and then operate and maintain, additional equipment will likely result in a cost that is lower than what ODOT is currently supporting for each of its county level offices.

Using Lake County's inventory as a very rough measure of county engineer equipment inventories statewide, then 37 pieces of equipment multiplied by 88 counties totals 3,256 pieces of equipment owned by county engineers. Estimating the amount of equipment owned by all the county engineers in Ohio is difficult; the inventory developed by the AOS for Lake County is the only third-party verified inventory in the state. GOPC requested equipment inventories from a select sample of other Ohio counties but never received requested information. Using 37 as an average number of pieces of equipment owned by a county is likely a low estimate--Lake County is Ohio's smallest county in terms land area and maintains fewer lane miles and bridges than most other counties.[42]

Assuming that Ohio's county engineers own 3,256 or more pieces of equipment, then state and county road maintenance entities roughly own 19,809 total pieces of equipment (3,256 county engineers + 16,553 ODOT). The ratio of this total state and county equipment to ODOT lane and county centerline mile is very low: one piece of county- or state-owned highway and road maintenance equipment for every 3.6 ODOT

lane and county centerline mile. Even if each county engineer owned only 10 pieces of equipment (88 counties * 10 pieces of equipment), the ratio of all state and county equipment to ODOT and county roadways would be one piece of equipment for every 4.1 miles of ODOT lane and county centerline mile (71,178 miles/[880 engineer-owned equipment + 16,553 ODOT-owned equipment]).

In contrast, WVDOT's 4,000 pieces of equipment result in a ratio of one piece of equipment for every 17.8 miles to be maintained. Given the diversity of lane miles maintained by West Virginia, it seems likely, based on West Virginia's equipment inventory, that the county engineers could maintain Ohio's interstate, state, and county roads with significantly less equipment than is now owned by the two entities currently maintaining these roads.

Considering townships in broader, statewide, equipment purchasing efforts could further enhance savings and efficiencies, since county engineers are already permitted to take on road responsibilities for townships. In Lake County, the five townships surveyed by AOS own at least 43 pieces of road maintenance equipment. These townships are collectively responsible for 216 centerline miles of township roads. Their ratio of one piece of equipment for every 5 centerline miles is on par with the low levels of equipment to mileage inventory of state and local governments in Ohio.

Again, amendments to ORC 9.482 should further clarify that state agencies like ODOT can enter into contract with political subdivisions such as counties and transfer all responsibilities from one party to another to the extent it is constitutionally allowable.[43]

- **Transfer Responsibility for all State and U.S. Routes in Cities to ODOT.** Although a study released by ODOT in 2011 warns of the high costs ODOT would face if it were to take on the maintenance of state and U.S. highways within city boundaries,[44] that study focuses on the costs incurred by a complete and immediate transfer of responsibilities from cities to ODOT. The report does not contemplate the use of cooperative agreements in establishing contracting fees between ODOT and cities or the potential long-term savings that could be achieved by incrementally integrating ODOT and local government infrastructure responsibilities.

  The report also highlights policy challenges to transferring responsibility of state and U.S. routes from cities to ODOT. Questions of whether ODOT or the local government should have authority to make decisions on design and maintenance standards are valid and important considerations. However, they are not insurmountable barriers and the General Assembly could easily clarify ODOT's responsibilities and authority over such issues such as signage, speed limits, local planning, and street codes (e.g. bike lanes and sidewalks). Moreover, in light of home rule, the transfer of state and U.S. routes from cities to ODOT would be elective; the General Assembly could not require cities to transfer responsibilities of these routes to ODOT.

For those cities that would want to transfer to ODOT responsibility for state and U.S. routes, the General Assembly could put into place policies stipulating that cities must bring storm sewers, culverts, and other infrastructure to a standard that is acceptable to ODOT. Additionally, the General Assembly could require cities to provide a plan for managing emergency operations on state and U.S. routes before transferring construction and repair responsibilities to ODOT; those plans might include an annual fee from the city to ODOT for providing emergency services or the city may elect to continue providing its own emergency support operations. The specifics of each ODOT-city relationship can be established through cooperative agreements.

Certainly, if ODOT were to take on more responsibilities its budget would be affected—a serious and valid concern given the department's funding shortfalls and fragile financial situation.[45] However, the cost estimates ODOT makes for taking on responsibility of state and U.S. highways within cities are overstated, as the AOS makes clear that ODOT has low utilization rates for existing equipment. Additionally, as this report, *Transportation Facility and Equipment Sharing: Integration Efforts between County and ODOT,* and *Coordinating Efforts Between Counties and Smaller Jurisdictions: Shared Purchasing and Capital Costs on Roadway Maintenance and Facilities* demonstrate, cost savings and increased efficiencies can be achieved through cooperative agreements and shared service provisions. Lastly, the General Assembly has the authority to designate whether ODOT or local governments are responsible for the increased costs associated with standardizing design and maintenance and can allow for ODOT-municipal cooperative relationships to be decided on a case-by-case basis.

If ODOT were to take on the construction, repair, and maintenance of all state and U.S. highways within cities, Ohio's infrastructure system would move towards becoming a more integrated system. An integrated system would lead to improved service delivery if roadway repair in one area is performed all at once, instead of piecemeal by the different jurisdictions located in that area, among other the many other efficiency and cost savings advantages discussed earlier.

Conclusion

GOPC has identified cost savings and efficiencies available to ODOT. West Virginia's DOT provides a potential model for managing and maintaining Ohio's critically important highway system while Ohio's Auditor of the State has also begun to outline potential paths forward for ODOT to operate effectively and efficiently in the 21st century. With many policy barriers recently eliminated, now is the time for ODOT and local governments to reevaluate and adjust the ways they administer their fleets and maintain Ohio's essential roadway infrastructure. Through equipment right-sizing and administrative efficiencies the state could save more than $25 million over ten years.

New ways of coordinating with county engineers and local governments also provide ODOT with several different options for future cost savings and increased efficiencies. Creating more "permeable" county and district boundaries within ODOT would assist the department in maximizing its existing resources. Alternatively, transferring county-level ODOT responsibilities to county engineers would eliminate the fragmentation of roadway repair and maintenance projects, and thus improve taxpayers' experiences of their roadways by integrating local and state responsibilities into one system. Another option, which could be utilized in coordination with either approach above, would be to decrease service delivery fragmentation by providing legislative guidance on how to reasonably transfer the responsibilities of state and U.S. routes within cities to ODOT.

ODOT still faces challenges to its long term fiscal health and there are budgetary challenges between ODOT and localities that would need to be resolved before changes to the system of service delivery on Ohio's roadways could occur. However, over a transitional period, the changes explored in this research brief could improve service delivery to taxpayers, avoid significant future administrative and operating costs, and achieve substantial long term savings.

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[1] Lane miles measure distance and width of a roadway. One mile on a four lane highway equals four lane miles. Lane miles are a more accurate measurement of roadway surface than centerline miles which only calculates distance. One mile on a four lane highway is only one centerline mile.

[2] Unincorporated means areas that are not in incorporated municipalities, i.e. cities or villages. As discussed in Research Brief #1 and #2, city and villages are responsible for all streets and roads within their boundaries; county engineers maintain county routes and township trustees are responsible for the maintenance and repair of township roads.

[3] http://www.dot.state.oh.us/Divisions/Legislative/Documents/ODOT%20REPORT%20-%20Maintenance%20of%20Municipal%20Routes%203-11-11.pdf p 1.

[4] http://www.dot.state.oh.us/Divisions/Legislative/Documents/ODOT%20REPORT%20-%20Maintenance%20of%20Municipal%20Routes%203-11-11.pdf p 9.

[5] ORC 5501.14.

[6] http://www2.dot.state.oh.us/map1/macromap.asp.

[7] http://www2.dot.state.oh.us/interstate50/OhioInterstateHistoryTimeline.htm

[8] http://www.dot.state.oh.us/Divisions/Legislative/Documents/ODOT%20REPORT%20-%20Maintenance%20of%20Municipal%20Routes%203-11-11.pdf p 5.

[9] http://codes.ohio.gov/orc/5521.01 The consent ordinances are submitted through ODOT Form MR-689. http://www.dot.state.oh.us/Divisions/Engineering/Roadway/DesignStandards/traffic/TEM/Documents/Part_03_Complete_101912Revision_bookmarked_101212.pdf p 3-7.

[10] http://www.dot.state.oh.us/Divisions/Legislative/Documents/ODOT%20REPORT%20-%20Maintenance%20of%20Municipal%20Routes%203-11-11.pdf p 9.

[11] http://codes.ohio.gov/orc/gp9.482.

[12] http://codes.ohio.gov/orc/5501.03v2 5501.03D.

[13] "Agility Agreements. District 4, October 2012." From Anthony Urankar, ODOT District 4 Deputy Director, retrieved from Randy Cole, March 27, 2013; "ODOT's Inter/Intra Agency Agreements." From Andrew Bremer, ODOT Deputy Director of Legislative Affairs, retrieved from Randy Cole, March 27, 2013.

[14] http://www.in.gov/indot/2337.htm; http://transportation.ky.gov/Pages/AboutUsInfo.aspx.

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[17] ORC 125,832; http://www.auditor.state.oh.us/publications/issues/ODOTInterimReport2012Sept19.pdf p.7.
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[21] ODOT. 2011. "Financial and Policy Implications on Assuming Primary Responsibility for all State Routes Throughout Ohio Regardless of Local Government Jurisdiction." http://www.dot.state.oh.us/Divisions/Legislative/Documents/ODOT%20REPORT%20-%20Maintenance%20of%20Municipal%20Routes%203-11-11.pdf
[22] Data provided by Janet L. Lemon WVDOT, Division of Highways, Program Planning and Administration Division on April 12, 2013.
[23] Testimony by Director Jerry Wray to 130th General Assembly's House Fiannce and Appropriations Transportation Sub-Committee. February 7, 2013. http://hannah.com/ShowDocument.aspx?TestimonyID=4786 page4.
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List of Interviewees

Dan Sikora, WVDOT District 6 Engineer/Manager
Mike Neely, WVDOT Equipment Division
Ron Smith, WVDOT Asst. Commissioner, Div. of Highways
Janet L. Lemon, WVDOT, Transportation Data Reporting Section Head
Doug Burke, ODOT Office of Equipment Management
Chuck Bernthold, ODOT, Office of Equipment Management
Michael Greenwood, ODOT, Research Administrator

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