

FLORIDA MOBILITY FEE STUDY

Final Report

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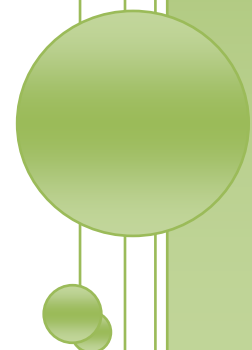
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Florida Mobility Fee Study

Final Report

EXECUTIVE SUMMARY

This report provides a working concept and methodology for application of a mobility fee in Florida. It also addresses some policy and practical implications of implementing such a fee and illustrates the approach through hypothetical testing in Alachua County, Florida. Alachua County was chosen as a suitable area to test the mobility fee methodology due to the existence of a multimodal mobility plan and the County's desire to implement a mobility fee. Additional research is needed to address specific legislative requirements signed into law in June 2009.

Alternative Approaches Considered

Three approaches covering a range of possibilities were initially reviewed for possible application as a mobility fee. They include: (1) a road user fee paid by all roadway users and applied on a statewide basis, (2) an impact fee modified for sensitivity to vehicle miles traveled, and (3) an adapted transportation utility fee assessed on all property within an established district based upon estimated use of the utility (i.e., transportation system).

Each approach was evaluated in terms of its effect on vehicle miles of travel (VMT), consistency with growth management objectives, equity, ease of implementation, and flexibility as a revenue source for the entire transportation system. The relative attributes of each approach are provided in Table ES-1. Considering these attributes, a working concept for a mobility fee was developed for consideration in Florida. The road user fee, while a stable revenue source, poses complex implementation challenges and therefore was not selected for further analysis at this time.

Mobility Fee Working Concept

The mobility fee working concept is an impact fee on new development that is modified for sensitivity to vehicle miles traveled (VMT). A transportation utility fee is also suggested as an optional mechanism for use in urban centers and along transit corridors to fund localized mobility needs including transit operating expenses.

Modifying the standard impact fee equation to increase sensitivity to VMT will reward developments that locate in or near urban centers and those that offer a balanced mix of uses with lower fees. This would help foster compact, mixed use development. All new development would be subject to the impact fee proportionate to the impact of that development on the transportation

The working concept for a mobility fee is an impact fee that is modified for sensitivity to vehicle miles traveled. The transportation utility fee is also suggested as an optional mechanism for urban centers to fund localized mobility needs and transit operating expenses.

system. Application of the fee to all new development would result in equitable treatment among developers in a given region.

Table ES-1: Mobility Fee Working Concept Attributes Comparison					
FINANCING FEATURE	WORKING CONCEPT		APPROACH 1	APPROACH 2	APPROACH 3
	IMPACT	UTILITY	ROAD USER FEE	MODIFIED IMPACT FEE	ADAPTED TRANSPORTATION UTILITY FEE
FOSTERS COMPACT, MIXED-USE DEVELOPMENT	Yes	Yes	Yes	Yes	Yes
ASSESSMENT BASE	New development	All properties in the district	All road users	New development	All properties in the district
MULTIMODAL REVENUE	Moderate	High	High	Moderate	High
CAPITAL REVENUE	High	High	High	High	High
OPERATIONS/MAINTENANCE REVENUE	Low	High	High	Low	High
REVENUE PREDICTABILITY	Cyclical	Stable	Recurring / Stable	One-time payment / Cyclical	Recurring / Stable
BACKLOG FINANCING	No	Yes	Yes	No	Yes
ASSESSMENT VARIES BY VMT OR LOCATION	Yes	Yes	Yes	Yes	Yes
EASE OF IMPLEMENTATION	Moderate	Moderate	Difficult	Moderate	Moderate

A limitation of any impact fee is that revenue depends upon growth and is therefore cyclical. Although it provides funding for new capacity, revenue sources for backlogs, operations (particularly transit), and maintenance would still be needed. Given these limitations, the working concept also proposes an optional transportation utility fee for application in urban centers. The utility fee would be most beneficial to urban counties and municipalities with transit service and localized multimodal needs, particularly where all other optional revenue sources have been exhausted.

Because it is assessed on all system users, the transportation utility fee is a stable revenue source. By supporting expansion of modal alternatives within urban centers, it is expected to have some impact on reducing VMT and fostering compact, mixed use development. A current impediment to its use in Florida is the Florida Supreme Court ruling that a transportation utility fee is a tax and therefore not presently authorized under Florida law. Enactment of such a fee would therefore require legislation defining transportation facilities as a utility, or otherwise addressing this concern.

Planning and Institutional Considerations

Ideally, the mobility plan and corresponding mobility fee would be adopted on a countywide or regional basis. Regional coordination of the mobility plan, a consistent fee structure to influence VMT, and equitable distribution of revenues and improvements are recommended components of a mobility fee program. Existing regional structures that may be considered for this purpose include intergovernmental agreements, metropolitan planning organizations, regional transportation

authorities (e.g. TBARTA), regional planning councils, or regional planning collaboratives (e.g. myregion).

The working concept estimates VMT using travel demand modeling software both to develop the fee and to determine the VMT associated with new developments during development review. The Florida Standard Urban Transportation Model Structure/Cube Voyager (FSUTMS/Cube) is recommended due to its acceptance in transportation impact assessment and MPO long range transportation planning throughout Florida. Travel demand models are available in nearly every location in Florida, with the current exception of the counties between Tallahassee, Jacksonville, and Gainesville that lack significant roadway networks.¹

Cost Basis

Planned improvements in an adopted mobility plan that addresses all modes of transportation will serve as the cost basis for the fee. As a local, county, or regional mobility plan is developed, the cost of individual projects implementing the plan must be estimated. This target funding level (TFL) is the amount of revenue that the fee will need to generate to fund planned mobility improvements in light of other committed revenue sources. The proportion of planned projects that will address existing backlogs, rather than new capacity, should be treated separately and not included in the target funding level.

Determining the Fee Rate

Calculating the mobility fee rate begins with an estimate of the expected growth in vehicle miles of travel in the region between the base year and the planning horizon year using a travel demand model (FSUTMS/CUBE). The difference between these VMT estimates represents the growth in VMT within the county or region. This application of FSUTMS/CUBE can be readily accomplished in areas that have an established travel demand model and corresponding long range transportation plan (LRTP). Any changes to the model needed to accommodate the mobility fee approach can be made at any time or during the next LRTP update. This approach closely ties the mobility fee to the planned land use scenario and corresponding transportation system. Accordingly, the mobility fee rate should be recalculated when the mobility plan is amended or updated.

The target funding level and the total VMT growth may then be used to calculate the mobility fee rate. Two options are provided for calculating the mobility fee rate per vehicle mile of travel – an average rate (fixed rate), or a location-based rate (variable rate) that varies by planning area.

Average rate

The average rate is a fixed rate that relies solely on vehicle miles of travel as the controlling factor. The rate is calculated by dividing the target funding level (TFL) by total VMT growth within the planning horizon.

¹ Bradford, Columbia, Dixie, Gilchrist, Hamilton, Lafayette, Levy, Madison, Taylor, and Union Counties are not included in any of Florida's travel demand models. Baker and Putnam Counties are being added to the Northeast Regional Planning Model. Jefferson County is being added to the Capital Region TPA Model.

In this option, the same fee is charged for each estimated vehicle mile of travel regardless of the development's location within the planning areas of the county or region. The farther a development is located from an urban center, the greater the number of vehicle miles traveled and, therefore, the higher the mobility fee.

Location-based rate

The location-based rate varies the rate assessed per VMT according to where the development is located. This requires designating certain area types across the region. For the working concept, three area types were defined - urban center, urban reserve, and rural. However, additional area types and those of differing descriptions could be established depending on the characteristics of the region.

Counties and regions will differ widely in terms of the number and size of the planning areas they define. Therefore, to calculate a location-based rate that will achieve the estimated target funding level relative to VMT growth within each planning area, it is necessary to standardize these areas as described in the report. These calculations will weight the fee for each planning area according to the size of the planning area and its relative VMT characteristics. The resulting fee will be lower in urban centers (e.g. urban core, activity centers, transit corridors, villages) and proportionately higher for each subsequent planning area, based upon its distance from the centers.

Applying the Mobility Fee

The final step is to apply the mobility fee to the estimated vehicle miles traveled of each proposed new development. The fee would be administered locally during development review. The same travel demand model used to develop the fee rates, FSUTMS/CUBE, should be used to estimate VMT for new development. The mobility fee for a new development is equal to the computed VMT of the development multiplied by the mobility fee rate.

The travel demand model VMT computation may be performed by technical staff within the county/region or a qualified consulting firm subject to institutional review. Using travel demand modeling to determine the VMT may be unwieldy for applicants of small developments, small communities, and/or rural counties. A general mobility fee table could instead be developed by averaging trip length by planning area. This table would be useful for small developments as well as local governments with limited technical expertise.

Conclusion

This report presents the results of an exploratory analysis of mobility fee applications in Florida. It proposes an impact fee that is modified for sensitivity to vehicle miles travelled. The approach presented here anticipates regional cooperation in the development and adoption of a mobility plan that includes all transportation modes.

A number of existing systems and fees may be affected by implementation of the mobility fee working concept. Further development of a mobility fee concept might address the relationship of

the mobility fee to transportation concurrency management systems, local government impact fees, DRI proportionate fair share, and proportionate fair share mitigation. Depending on plans for existing impact fee revenue, abandoning existing fees may cause a mobility fee to be very high, particularly if addition funding mechanism is not an option.

Consideration also must be given to legal limitations of the mobility fee. Because the proposed mobility fee concept is an impact fee, certain concerns arise in applying an improvements-driven method of determining the fee. One is whether the fee may be construed as requiring new development to pay for backlogs, which is expressly prohibited by statute. As proposed, the working concept requires the proportion of planned projects that will address an existing backlog to be separated from the target mobility fee funding level. Another concern is the nexus required between the impact fee and multimodal improvements established by the mobility plan. A method to address this concern will need to be clearly defined as part of the mobility fee program.

Another issue is whether the fee will serve as an adequate incentive for compact urban development. Transportation concurrency management is not the only barrier to urban infill and redevelopment. Difficulty in amassing property, complex development requirements, contemporary land development codes and standards, and lengthy development approval processes all increase the cost of infill.

Local governments should create additional incentives to encourage infill development by addressing these other barriers. Mobility fee reductions or waivers, often considered incentives, can adversely impact transportation revenues and increase funding shortfalls and, therefore, should be limited to maximize implementation of the regional mobility plan. The amount of any mobility fee reduction should be offset by clear benefits to the mobility plan. An alternative funding source (i.e., general fund, tax increment financing, or transportation utility fee) should also be identified to make up revenue lost by granting impact fee reductions or waivers.

The proposed working concept suggests the development of a regional mobility plan. However, localized mobility needs clearly also need to be addressed. Such needs may require another funding alternative, such as a transportation utility fee. Alternatively, a local impact fee may also be needed to fund localized improvements not reflected in the mobility plan. This raises additional concerns relative to cost of infill and the need to avoid double-charging development for its impacts.

The proposed methodology relies on Florida's existing travel demand model, FSUTMS/CUBE. Because the model was not designed for this purpose, further research will be needed to ensure its adequacy for the task.

Finally, a mobility fee in Florida should be clearly authorized by statute. The statute should identify under what circumstances the fee may be implemented, including planning considerations and institutional arrangements. It should also consider provisions of recent legislation, including HB 697, HB 7135, HB 227, HB 1021, and SB 360. These new laws significantly altered existing planning and growth management requirements in Florida.

SB 360, enacted while the current study was nearing completion, also directly addresses mobility fees. It calls for the state to evaluate and consider implementation of a mobility fee to replace the existing transportation concurrency system. It further states that the mobility fee approach should provide for mobility needs, ensure that development mitigates its impacts on the system in approximate proportionality to those impacts, fairly distribute the fee among the governmental entities responsible for maintaining the impacted roadways, and promote compact, mixed-use, and energy-efficient development.

The Florida Departments of Community Affairs and Transportation were instructed to develop and submit a joint report to the legislature on the mobility fee methodology study no later than December 1, 2009. The report is to include recommended legislation, a plan to implement the mobility fee as a replacement for local transportation concurrency management systems and an economic analysis of implementation of the mobility fee. Further research on the mobility fee will be needed to address these considerations.

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Florida Mobility Fee Study

INTRODUCTION

Considerable interest has been expressed in Florida in the concept of a transportation mobility fee. Any discussion of a mobility fee, however, raises alternative views and numerous questions as to the role of the fee and how it might be structured and administered. For example:

- Should it be applied only to new development, users of the system, property owners, or some combination of these groups?
- What is the cost basis for such a fee?
- Can the fee be structured to discourage urban sprawl and reduce trip making or vehicle miles of travel (VMT)?
- If it is to be sensitive to VMT, then how might it be administered – particularly in smaller or rural communities that lack such analytical expertise or resources?
- And how might the fee affect other fees and planning or growth management processes in Florida, which have been the subject of significant state, regional or local investment?

These are but a few of the many policy, institutional, and methodological questions surrounding the development and implementation of a mobility fee in Florida. To explore these questions, and possible alternative concepts for the fee, the Florida Department of Community Affairs (DCA) contracted with the Center for Urban Transportation Research (CUTR), University of South Florida and national experts Arthur C. Nelson, Ph.D., FAICP, Presidential Professor and Director of Metropolitan Research University of Utah, and James C. Nicholas, Ph.D., Emeritus Professor of Law and Urban and Regional Planning University of Florida.

In Phase 1 of the study, the research team documented results of a policy analysis exploring potential approaches and practical implications of a mobility fee (MF). The Phase 1 Report, completed in March 2009, reviewed possible mobility fee alternatives and set forth a working concept and methodology for consideration in Florida.

Subsequent research has involved testing and refinement of the working concept through hypothetical application in Alachua County, Florida. Alachua County was chosen as a suitable area to test the mobility fee methodology due to the existence of a multimodal mobility plan and the County's desire to implement a mobility fee. This final report refines the policy analysis and conceptual methodology presented in Phase 1 and illustrates the approach through exploratory testing in Alachua County, Florida.

Key Considerations

A mobility fee may take on a variety of forms. A first step, therefore, is to define the key considerations or underlying goals relative to such a fee. This research focused on existing transportation revenue approaches that are sensitive to VMT. Each approach was considered in

terms of its effect on vehicle miles of travel, consistency with growth management objectives, equity, ease of administration, and flexibility as a revenue source for the entire transportation system. These considerations are discussed further below.

Equity

Pressure toward exurban development in Florida has been heightened by a lack of equity in charging for capacity. With transportation concurrency, new development freely consumes available road capacity and pays for impacts only when road capacity is exceeded. This encourages development in outlying areas where capacity is available. It also places a disproportionate financial responsibility on developers seeking concurrency approval after available capacity has been consumed, resulting in market inequities. A mobility fee charged to *all* new development for the capacity it will consume ensures that each new development contributes its fair share.

VMT and Growth Management

An underlying goal of any contemporary transportation initiative is to address the social, economic, and environmental costs of continued growth in vehicle miles travelled (VMT). A related goal is to discourage urban sprawl, which has contributed to rising VMT and reduced the viability of alternative transportation modes. More densely settled areas generally exhibit fewer vehicle trips than lower density areas, and the trips that are made tend to be shorter, resulting in lower overall VMT.

Addressing these issues will help curb the dramatic growth in costs of providing an efficient transportation system. Transportation is but one infrastructure cost that has been shown to vary based on the density and pattern of urban development. While studying the cost of alternative development patterns in Florida for DCA, Duncan and Associates found that public facility costs for compact urban development were about half of the costs for scattered development.² That study confirmed for Florida what others have found for the rest of the nation.

A mobility fee that correlates with vehicle miles traveled would reflect this cost differential. However, to do so, the fee structure would require attention to location, distance, and density of development. Location, in this context, refers to the fact that because of terrain or other features, it is simply more expensive to provide and maintain capital facilities in some areas than others. Distance means that a greater number of lengthy trips are needed to access work and other destinations in some areas than in others. Density refers to the concentration of people, goods, and services within an area, resulting in fewer daily vehicle trips in a densely settled area.

A mobility fee designed to consider location, distance, and density of development would reward developers that minimize VMT generated by proposed developments. This would reinforce compact, mixed use development in areas with urban services and discourage development of

² James Duncan and Associates, Inc., et al. *The Search for Efficient Urban Growth Patterns: A Study of the Fiscal Impacts of Development in Florida*, Florida Department of Community Affairs, 1989.

exurban areas. It would also more accurately reflect the actual social, economic and environmental costs of sprawl development. Reducing VMT and promoting compact urban growth will, however, also require effective local and regional mobility planning and the political will to enforce those requirements.

Ease of Implementation

An issue of paramount concern to local governments is the relative ease of implementing a mobility fee. Initial system set-up, such as studies establishing the cost basis, and implementing procedures and ordinances should not be overly costly or complex. In addition, daily administration of the fee should be relatively straightforward and build upon planning tools and processes currently in use in Florida.

A countywide or regional form of governance could increase ease in implementing a mobility fee system, as it offers the ability to jointly fund or centralize modeling and other technical studies necessary to develop and maintain the fee. Countywide agreements, metropolitan planning organizations (MPOs), regional transportation authorities (e.g., TBARTA), regional planning councils, or multi-county planning collaborations (e.g. Myregion) are some of the structures that might be considered.

A regional form of governance would also facilitate coordinated mobility planning and provide a framework for consistent implementation. Local mobility plans need to be carefully coordinated on a countywide or regional basis to effectively address transportation system needs, which do not end at jurisdictional boundaries. In addition, regional consistency will be critical if the fee is to be sensitive to VMT and reinforce compact urban growth.

Any mobility plan(s) and corresponding capital improvement program(s) (CIPs) will ultimately need to be integrated into associated local government comprehensive plans. Planned mobility improvements provide a cost basis for the mobility fee and will need to be adopted prior to establishing the fee. Each local government could administer the fee during development review, through a procedure similar to the current transportation impact assessment process. The mobility fee revenue could also be programmed along with other revenues to fund the respective projects of each jurisdiction.

Revenue Flexibility

Expenditure of many transportation funding sources is limited to roadway capacity. However, infrastructure investment and operating funds for all modes are essential to providing travel alternatives to the single occupancy vehicle. A mobility fee must provide a flexible revenue source for the entire transportation system and ideally would also fund trip reduction strategies and programs.

A related issue is whether mobility fee revenues for roads, transit, and other modes may be applied to system backlogs, maintenance, and operations, or *only* to new capacity. Maintenance, operating, and administrative needs for transportation, regardless of mode, require continuing or recurring sources of revenue. *A mobility fee is unlikely to address all of these needs.* Therefore, establishing general principles as to whose responsibility it might be to construct, operate, and maintain various aspects of the transportation system may be useful in identifying a mobility fee focus.

A mobility fee charged only to new development may fund transportation system capacity required by the development including transit capital improvements, as well as bicycle and pedestrian facilities. Yet, the additional operating, maintenance, and administrative costs of these systems and other congestion-management strategies will likely remain underfunded. Logically, these costs should be borne by all those benefiting.

Possible Approaches

Three approaches covering a range of possibilities were reviewed for possible application as a mobility fee. They include a road user fee, a modified impact fee, and an adapted transportation utility fee. Each approach was evaluated in terms of its effect on the considerations noted above (vehicle miles of travel (VMT), consistency with growth management objectives, equity, ease of implementation, and flexibility as a revenue source for the entire transportation system). The approaches are summarized below. More detailed discussions are provided in Appendix A.

Road User Fee

One approach reviewed is a road user fee³ paid by all roadway users and applied on a statewide basis. A road user fee is charged based on the number of vehicle miles travelled by each individual vehicle in a given period. It is generally a replacement of the gas tax, although it may be considered an additional source of revenue. Road user fees, particularly when combined with congestion pricing, would influence driver behavior which in turn would affect VMT and reinforce growth management.

The time needed to study and fully implement such an approach is a clear disadvantage of the road user fee. Implementation would require legislative action and development of program specifics. More challenging is that all vehicles and filling stations must be outfitted with appropriate equipment. While its complexities render it somewhat infeasible for fulfilling the desires of a mobility fee, the road user fee is worth mentioning as it has attracted considerable national interest and has been field tested in Oregon.

³ Oregon's Mileage Fee Concept and Road User Fee Pilot Program is a complex well-documented approach under serious consideration in the state. The final report and additional information are available at <http://www.oregon.gov/ODOT/HWY/RUFPP/>. Similar programs are being considered by Iowa, North Carolina and Rhode Island.

Modified Impact Fee

The second approach considers an impact fee on new development that is modified for sensitivity to VMT. Developing a modified impact fee that correlates with VMT may be accomplished by using travel demand modeling software such as the Florida Standard Urban Transportation Model Structure (FSUTMS). Costs used to determine the fee per vehicle mile could either be based on average costs of providing a lane mile of roadway or other system capacity (demand driven) or be based on that portion of estimated project costs attributable to new development in an adopted mobility plan (plan based). These costs could be further broken down by location and area type (urban, suburban, and rural).

Modifying the standard impact fee equation to increase sensitivity to VMT will reward developments that locate in or near urban centers and those that offer a more balanced mix of uses with lower fees. This will help foster compact, mixed use development through increased fee rates for developing outside of urban centers and other areas not yet planned for development. If the cost basis of the fee is a multimodal mobility plan or list of multimodal improvements, then revenue from the fee may be used for all such planned improvements. This could include some portion of transit operating expenses.

Implementation will require standard set-up, including a technical study, to establish the cost basis and fee schedule. Administration would be similar to that of current impact fees - an advantage over other approaches that would be entirely new to Florida. In addition, all new development would be subject to the impact fee resulting in equitable treatment among developers. The fee would also be proportionate to the impact of the development on the transportation system; however, planning objectives may be used to increase fees in areas not yet planned for development.

The modified impact fee does have certain drawbacks. It is not a stable or sufficient revenue source for ongoing transit operations, nor is it sufficient to fully fund capital improvement needs or long-term system maintenance. Rather, it is a method of ensuring that new development pays its pro rata share of the transportation needs attributable to growth. Additional revenue sources will be needed in urban areas to operate and maintain an efficient multimodal system.

Adapted Transportation Utility Fee

The third approach is an adapted transportation utility fee. This fee is aimed at all users within a specified district (as opposed to new development). This type of fee (sometimes known as a street maintenance fee or street utility fee) is similar to other types of utility fees and may be used for capital facilities, maintenance, operations, and administration. Like other utility fees, all property within an established district is assessed a fee in accordance with estimated use of the utility, which in this case is the transportation system. Fees are determined by land use and placed in an enterprise fund.

This fee could be adapted for application as a mobility fee through the use of service areas similar to impact fee districts. Fees would be developed based upon an adopted mobility plan for each service area. This fee also provides two ways to determine facility demand – VMT and functional population.⁴ The VMT-based method would use property tax assessor records and land use codes to determine the appropriate fee for each property based on the VMT associated with that land use. The functional population method establishes a fee based on the estimated number of people occupying the service area over the course of a day and the plan for alternative modes.

The adapted transportation utility fee offers an innovative approach to funding transportation mobility that treats transportation as a utility. It is equitable in that those benefitting from an efficient multimodal system would pay their fair share. It provides a stable, ongoing revenue stream to address all aspects of transportation mobility. Implementation of the fee may be somewhat complex at first, particularly initial studies and system set-up through the property tax assessor's office. Administration beyond that point would be routine invoicing, collection, and distribution of revenue.

This type of fee is expected to have some impact on reducing VMT and fostering compact, mixed use development by increasing modal alternatives within urban centers. A current impediment to its use in Florida is the Florida Supreme Court ruling that a transportation utility fee is a tax and therefore not presently authorized under Florida law. Enactment of such a fee would therefore require legislation defining transportation facilities as a utility, or otherwise addressing this concern.

THE MOBILITY FEE WORKING CONCEPT

Considering the attributes of the three approaches reviewed, a working concept for a mobility fee was developed. The working concept for a mobility fee applies the modified impact fee approach and suggests supplementing the fee with an optional mechanism, such as a transportation utility fee, to fund localized mobility needs and transit operating expenses.

The primary concept for the mobility fee is a modified impact fee assessed on new development. The fee would be based upon improvements in an adopted mobility plan that addresses all modes of transportation. Through sensitivity to VMT, the modified impact fee will help to discourage urban sprawl and reward mixed-use development and other development near or within existing activity centers. A limitation of the fee is that revenue depends upon new development and is therefore cyclical. Although it provides funding for new capacity, it has only limited potential to fund operating or maintenance needs. Revenue sources for backlogs, operations (particularly transit), and maintenance would still be needed.

⁴ Functional population is the effective population being served over the course of a day. For instance, if 100,000 people live and work in a community, and if another 60,000 commute into the community to work an 8-hour (one-third day), the functional population is $100,000 + (60,000 \times 1/3) = 120,000$.

Given these above limitations of a modified impact fee, the working concept also proposes an optional transportation utility fee for application in urban centers as well as new or planned activity centers, and along transit corridors. The utility fee would be particularly beneficial to urban counties and municipalities with transit service and localized multimodal facility needs. Because it is assessed on all system users, the transportation utility fee is a stable revenue source, although new to Florida and one that requires further legal analysis and legislative authorization.

Table 1 compares the attributes of the working concept with those of the road user fee, the modified impact fee, and the adapted transportation utility fee. The road user fee, while a stable revenue source, poses complex implementation challenges and therefore was not selected for further analysis at this time.

Table 1: Mobility Fee Working Concept Attributes Comparison

FINANCING FEATURE	WORKING CONCEPT		APPROACH 1	APPROACH 2	APPROACH 3
	IMPACT	UTILITY	ROAD USER FEE	MODIFIED IMPACT FEE	ADAPTED TRANSPORTATION UTILITY FEE
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CAPITAL REVENUE	High	High	High	High	High
OPERATIONS/MAINTENANCE REVENUE	Low	High	Low	Low	High
REVENUE PREDICTABILITY	Cyclical	Stable	Recurring / Stable	One-time payment / Cyclical	Recurring / Stable
BACKLOG FINANCING	No	Yes	Yes	No	Yes
ASSESSMENT VARIES BY VMT OR LOCATION	Yes	Yes	Yes	Yes	Yes
EASE OF IMPLEMENTATION	Moderate	Difficult	Difficult	Moderate	Difficult

Modeling and Administrative Considerations

The working concept uses travel demand modeling software to estimate vehicle miles traveled for overall and planning area VMT, as well as for VMT associated with new developments. In Florida, travel demand modeling involves the Florida Standard Urban Transportation Model Structure/Cube Voyager (FSUTMS/Cube).⁵ The use of FSUTMS/CUBE is recommended due to its acceptance in transportation impact assessment and MPO long range transportation planning throughout the state. While application of travel demand modeling in developing a mobility fee program may seem daunting, the process parallels that of developing an MPO long range transportation plan. Proposed use of the travel demand model during development review to estimate development VMT is also comparable to current use of the model to determine trip distribution for transportation impact assessments. Travel demand models are available in nearly every location in

⁵ This transportation modeling software is currently used by the Florida Department of Transportation, Florida’s metropolitan planning organizations, and the consultant community and accepted by most local governments for preparation of transportation impact analysis.

Florida, with the current exception of the counties between Tallahassee, Jacksonville, and Gainesville that lack significant roadway networks.⁶

Initial testing of this model application revealed expected results when applied on a countywide or regional basis. New development VMT increased as development moved away from major urban centers that contain strong trip attractors, particularly major employment centers. This suggests that the model will perform the necessary applications for a implementing a mobility fee.

FSUTMS/CUBE is a tool that contains many intrinsic complexities. Only basic application of the model could be tested during this study. More detailed research and refinement of model application for estimating VMT within a mobility fee program would be beneficial. One concern is the limited number of land uses addressed by the model. The model relies on less than ten categories to describe dozens of general land uses rather than establishing a VMT for many land uses, such as those associated with the *ITE Trip Generation*. Another concern is that traffic analysis zones (TAZs) used in modeling cover large areas and are in no way associated with planned growth.

In addition, the methodology throughout this report uses the FSUTMS/CUBE output for trip generation when determining vehicle miles traveled. The initial research plan was to apply the procedure currently used to estimate trip generation and trip distribution and assignment in transportation impact analysis, primarily due to acceptability of the practice. That procedure uses *ITE Trip Generation* to estimate new development trip generation and FSUTMS/CUBE modeling to determine trip distribution and assignment.

This approach could not be fully analyzed in this study and should be further explored. The professional community agrees that FSUTMS/CUBE often underestimates trip generation and overestimates internal capture. Conversely, *ITE Trip Generation* sometimes overestimates trip generation and may underestimate internal capture, especially over time. Therefore, a detailed comparative analysis of the two approaches and their relative implications is recommended.

FDOT/UF VMT Study

Recognizing drawbacks to estimating VMT using the travel demand model, the Florida Department of Transportation (FDOT) has contracted with the University of Florida (UF) to explore VMT as it relates to specific land uses. According to the scope of services, the "research will develop generalized methodologies for measuring transportation impact using vehicle miles of travel and travel time." The resulting vehicle miles of travel methodology would more closely reflect the impacts of specific types of land uses and their location within the region and proximity to complementary 'indicator' land uses, such as major employers, grocery stores, home improvement stores, and schools." The FDOT/UF research effort complements this policy-focused project, by providing much needed refinements to VMT by land use.

⁶ Bradford, Columbia, Dixie, Gilchrist, Hamilton, Lafayette, Levy, Madison, Taylor, and Union Counties are not included in any of Florida's travel demand models. Baker and Putnam Counties are being added to the Northeast Regional Planning Model. Jefferson County is being added to the Capital Region TPA Model.

Mobility Fee Methodology

Implementing the proposed mobility fee working concept involves a variety of considerations, including potential institutional arrangements, planning considerations, cost basis, and fee calculations. The methodology consists of six general steps, ranging from determining the institutional structure to implementing the fee. These steps are discussed below, along with a corresponding section on how the methodology was hypothetically applied in Alachua County. Because Alachua County’s planning efforts were independent of the study, certain assumptions were required for consistency with the working concept. These assumptions are noted throughout.

Step 1: Determine the institutional structure

The first step toward establishing the mobility fee is to determine the institutional structure and geographic area for the fee. A regional structure is ideal for implementing a mobility fee for a variety of reasons. Urban sprawl, vehicle miles traveled, congestion, and the related growth of greenhouse gas emissions are regional problems. Such problems cannot be solved without

intergovernmental cooperation across a common economic region.

Mobility Fee Working Concept

The working concept for a mobility fee applies the modified impact fee approach. The methodology for the modified impact fee consists of six steps:

STEP 1: Determine institutional structure

STEP 2: Develop mobility plan

STEP 3: Estimate target funding level

STEP 4: Estimate VMT growth

STEP 5: Establish the mobility fee rate

STEP 6: Apply mobility fee

An optional mechanism is also suggested to fund localized mobility needs and transit operating expenses.

In addition, transportation system users are unconcerned with jurisdictional boundaries. The user’s main concern is accessibility to destinations, primarily in terms of cost (including time). Peak hour regional commuting places the greatest demand on the system validating a regional governance structure. Transportation or commuter “sheds” could establish the geographic basis for addressing these issues.

The rise in regional visioning initiatives in Florida and legislation establishing regional transportation authorities reflect a desire for increased regional coordination on land use and transportation planning

efforts. Regional structures could be relatively small, such as those involving a county and its municipalities, or they could represent multi-county regions. Existing organizational structures that may be considered for accomplishing a mobility fee include the following:

1. Metropolitan planning organizations or MPO collaborative, such as the Central Florida MPO Alliance which is comprised of 6 MPOs in the region.

2. A regional authority such as the Tampa Bay Regional Transportation Authority (TBARTA).⁷ Recognizing the regional nature of transportation systems, the Florida legislature has established regional transportation authorities in some large urban areas of the state.
3. A regional planning council or large planning collaborative such as the Central Florida initiative *myregion.org* or the SR 7 Collaborative in Broward County.⁸
4. Other local government collaborations such as a countywide program that includes the municipalities within the county. For example, several county governments implement concurrency and impact fee programs for the county and resident municipalities.

Benefits of a Regional Structure

A regional approach to mobility fees offers a variety of land use benefits. These include:

- *Reduced incentive for leapfrog development associated with sprawl by reducing the cost benefit of building further out;*
- *A forum for local governments to cooperatively plan and fund regional mobility, which is key to economic vitality;*
- *Ability to standardize fees across local governments within a common economic region, thereby eliminating the fee as a basis for tax base competition; and*
- *Reinforces regional development planning and tiered fee structures with progressively higher fees for development farther away from urban centers.*

Intergovernmental agreements among the local governments within the determined region could be entered to implement a common regional mobility plan and fee.⁹

Regional structures may be accomplished through intergovernmental agreements and arrangements currently available under Florida Statute. They would involve collaboration of two or more local governments, and may include the Florida Department of Transportation and other key providers, such as a transit agency (if other than the local government). Participating local governments should reflect land use, transportation, and mobility fee coordination efforts in the intergovernmental coordination elements of their respective comprehensive plans.

The mobility fee would be administered locally, as is the case with current impact fee or concurrency management systems. The local government responsible for issuing development permits would

⁷ TBARTA was created by state legislation and given full authority to plan, develop, finance, implement, and manage regional multimodal transportation systems. The authority's purpose is to improve mobility and expand multimodal transportation options for passengers and freight in the seven-county Tampa Bay region. It includes a 16 member board, with 15 voting members (7 County Commission appointees, 4 gubernatorial appointees, large city appointees, 1 West Central Florida MPO Coordinating Committee appointee, and one non-voting member - the Florida Department of Transportation).

⁸ The Central Florida initiative *myregion.org* encompasses Brevard, Lake, Orange, Osceola, Polk, Seminole, and Volusia Counties. The SR 7 Collaborative in Broward County involving 14 jurisdictions is another example focused on the redevelopment needs of a particular urban corridor.

⁹ For example, three Nevada jurisdictions - Washoe County, the City of Sparks, and the City of Reno - entered into an Interlocal Cooperation Agreement to establish and collect transportation impact fees. These fees are based largely on vehicle miles traveled, with a lower cost factor applied in areas served by transit. For example, the Pinellas County MPO develops a countywide impact fee ordinance and fee schedule for use by local governments in the county. Each local government administers the fee.

collect the fee and place it in a special account. If a regional structure is established, revenue in this account would be transferred to the regional governing structure and allocated in accordance with interlocal agreements and the capital improvement program for the adopted regional mobility plan.

Application of the Methodology: Alachua County

Alachua County's mobility plan addresses only the County's planned transportation system improvements. It does not represent a countywide plan.

Testing Assumptions

- Countywide structure. Assumes a countywide application of the mobility fee which includes participation of all municipalities. This assumption allowed testing of the regional scenario and also allowed all VMT from all hypothetical new development to be subject to the mobility fee regardless of location.

Step 2: Develop mobility plan

The mobility fee concept is a means to implement land use and transportation planning by each local government and among local governments, as reflected in a countywide or regional mobility plan. The plan would be contained in the future land use, transportation, and capital improvement elements of each applicable local government comprehensive plan. This mobility plan provides the cost basis for the mobility fee.

The mobility plan would be multimodal, addressing transit, bicycle and pedestrian facilities, trailways, intermodal connections, and network connectivity, in addition to roadway improvements. Transportation systems management and transportation demand management would also be addressed. Multimodal network continuity within and across jurisdictions would be addressed through the countywide or regional structure. This exercise would identify gaps in connectivity and provide further direction for mobility plans.

Existing MPO long range transportation plans or other regional transportation plans that address all modes of transportation may be considered regional mobility plans. However, a strong relationship between adopted comprehensive plan elements and socio-economic data used for modeling purposes is essential to this mobility fee working concept.

Future Land Use Element

The future land use element represents the growth plan for each local government, specifically designating areas where growth is desired or planned and areas not planned for urban development. Additionally, the future land use element would address planned densities and intensities and establish parameters for transit oriented development, traditional neighborhood development, and/or other specified development areas.

One option for calculating the mobility fee requires each local government to designate planning areas in the future land use element, such as urban centers, urban reserve, and rural areas, recognizing the dynamics of development and the different needs of each area. These areas will be used in determining vehicle miles traveled and establishing variable mobility fee rates. Additional or alternative planning areas may be designated and defined (e.g., transitional); however, planning areas must be prioritized in terms of greatest density first and lowest density last.

Planning area definitions would need to be identical throughout the countywide or regional planning area. Planning areas may help to implement urban service boundaries. New transportation system capacity to address growth in the various planning areas can be funded in part through the mobility fee charged to new development.

Transportation Element

The transportation element would define the multimodal transportation system needed to support the planned future land use. Capital and operating needs would be identified, as well as transportation strategies to reduce greenhouse gas emissions in compliance with §163.3177(6). Prioritized projects would be further reflected in a financially feasible long term capital improvement element and program.

Mobility throughout the county or region must be addressed using a variety of transportation modes. The MPO process includes a well-established long-range transportation planning process in collaboration with member local governments, often within county boundaries. The mobility plan could be based on regional multimodal priorities such as those in the MPO long range transportation plan. Existing modal plans such as transit plans, congestion management plans, bicycle and pedestrian plans, or trailways plans may also provide guidance for developing the multimodal mobility plan. In addition, many resources are available that detail various multimodal strategies for mitigating development impacts to segments of the transportation system.

The transportation plan must be closely coordinated with the future land use plan, demonstrating how land use and transportation will work together to accomplish desired mobility and growth management objectives. Transportation analysis should document how future travel demand will be accommodated by the proposed transportation system using professionally accepted techniques.

The mobility fee working concept assumes that development will occur in accordance with the future land use plan. Amendments to the future land use maps typically involve an increase in the density or intensity of use. Therefore, it will be important to gauge the impacts of those proposed land use changes on the planned transportation system on a cumulative basis. Failure to analyze cumulative impacts can result in inadequate planning for future transportation system needs and improvements as well as inadequate mobility fee revenue.

Capital Improvement Element

The capital improvements element should contain multimodal infrastructure projects and strategies identified to meet the needs of proposed future land uses and corresponding transportation system in the horizon year. The prioritization and timing of mobility improvements are also addressed in this element.

The resulting mobility plan thus documented in participating local government comprehensive plans serves as the cost basis for the mobility fee. Each time the future land use or transportation elements of a plan are amended corresponding elements should be analyzed for potential impacts. A regional mobility plan and corresponding local government comprehensive plans should be updated at least every five years; this update schedule corresponds to the MPO long range transportation plan update schedule. Regular updates to the mobility plan will accommodate cost fluctuations and other unanticipated changes, particularly in outer years of the plan.

Application of the Methodology: Alachua County

Alachua County is in the process of amending its comprehensive plan through *Mobility: Alachua County's Plan to Effectively Link Land Use and Transportation*. The plan proposes "to reduce vehicle miles travelled and greenhouse gas emissions per capita by providing for enhanced transportation mobility options in conjunction with land use changes that bring services closer to residents and provide for development densities and intensities that are transit supportive."¹⁰ The plan is complimented by incentives and standards for mixed use development to support transit and involves development of several BRT corridors and stations within the County that would eventually link outlying areas to Gainesville.

The County's mobility plan:

"is intended to produce [a] transportation and land use system within the Urban Cluster of Alachua County that reduce[s] vehicle miles of travel and per capita greenhouse gas emissions through development of an interconnected multimodal transportation system and makes transportation mode choice a reality by providing for bicycle and pedestrian friendly communities that have the densities and intensities of land use that can be effectively and efficiently served by mass transit."¹¹

The County Staff Report and accompanying exhibits, available on the Alachua County Growth Management website, provide a detailed description of the plan.¹² The plan amendment establishing the mobility plan contains changes, additions, and deletions to the capital improvements element, the future land use element, the transportation mobility element, and the intergovernmental coordination element as well as numerous illustrative maps.

¹⁰ Mobility. Alachua County's Plan to effectively link Land Use and Transportation. <http://growth-management.alachuacounty.us/TPIF/Mobility%20Brochure.pdf>

¹¹ Alachua County, Office of Planning and Development Staff Report, Application Number: CPA-01-09. April 8, 2009.

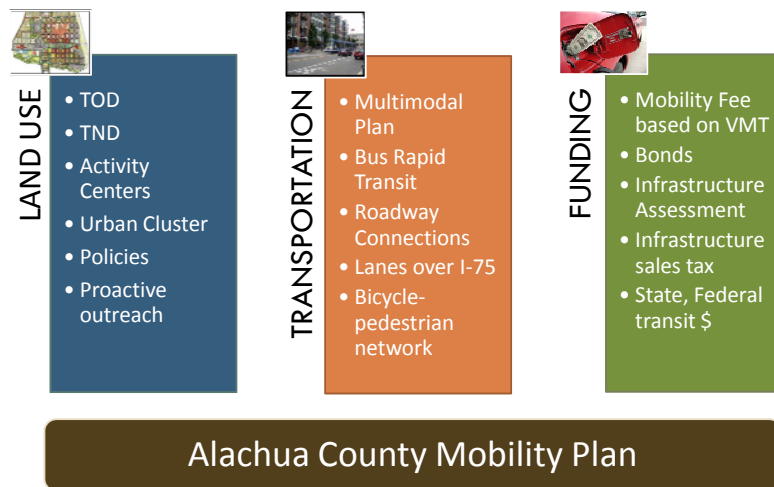
¹² Alachua County. CPA 01-09 Mobility: Alachua County's Plan to Effectively Link Transportation and Land Use <http://growth-management.alachuacounty.us/TPIF/cm_docs.php> (04 Jun. 2009).

The Staff Report categorizes the mobility plan into several key areas:

- Establishing Urban Cluster Transportation Mobility Districts within the Urban Cluster of Alachua County to provide a multi-modal transportation network that reduces vehicle miles of travel and per capita greenhouse gas emissions as required in HB 697 and F.S.163.3177 (6) (b) and to form the basis of a fee based concurrency system inside the Urban Cluster replacing traditional concurrency and proportionate fair share.
- Design standards for Traditional Neighborhood Developments and Transit Oriented Developments to provide for compact, mixed-use development patterns, that will result in a reduction in vehicle miles of travel and per capita greenhouse gas emissions, encourage walking and biking and provide the densities and intensities needed to support transit consistent with the requirements of HB 697 and F.S.163.3177 (6) (a).
- An incentive based multimodal transportation fee structure that will incentivize developments such as Traditional Neighborhood Developments and Transit Oriented Developments by recognizing their reduced impact on the major roadway network.
- Identifying the multimodal transportation infrastructure needs that can be reasonably anticipated by the land uses prescribed in the current Comprehensive Plan.
- Shifting infrastructure plans from being solely automobile-oriented so that they also include pedestrian, bicycle and transit infrastructure in a manner that positions those modes to be viable means of mobility in the future.
- Require the establishment of a multi-modal transportation fee to be utilized as a means to fund the capital costs of the proposed multimodal infrastructure plan.
- Enhanced intergovernmental coordination.

The Future Land Use Element enhances existing policies regarding traditional neighborhood development (TND) and introduces the transit oriented development (TOD) concept. Such developments are granted more units per acre and must be mixed use in nature with emphasis on walking, bicycling, and transit use. Several incentives are offered to encourage TODs and TND recognizing the increased cost of creating these mixed use developments. In particular, policies require that the multimodal transportation fee established in the plan be lower for TODs and TNDs.

The Transportation Mobility Element includes principles to discourage sprawl and encourage efficient use of the urban cluster. It also recognizes that congestion may be acceptable in growing urban areas "so long as viable alternative modes of transportation are provided that serve travel demand along the corridor." Various policies in the element address among other things level of service, roadway parameters, guidance for developing transit, and specific plans for each facility on the Strategic Intermodal System (SIS).



Testing Assumptions

This well-documented mobility plan serves as the mobility plan for testing the purposes. It lays the foundation for the mobility fee program; however, some assumptions were necessary to test the mobility fee working concept.

- Planning areas. The mobility plan did not designate specific planning areas as described in the working concept. For testing purposes, the Gainesville TCEA, municipal downtown cores, and some corridors were labeled urban centers. The County’s Urban Cluster and selected areas surrounding each urban center were labeled urban reserve, and the remaining area was labeled rural.

Municipal boundaries and urban service area boundaries were not used because these boundaries are often not reflective of planned growth during the planning horizon. Such boundaries are not required to correspond with the local government comprehensive planning process.

- Assumes one countywide district as opposed to the three Transportation Mobility Districts identified in the County’s plan.

Step 3: Calculate the target funding level (TFL)

The next step is to determine the target funding level for the fee. The target funding level (TFL) is the amount of revenue that the fee will need to generate to fund planned mobility improvements in light of other committed revenue sources. Planned improvements in the adopted mobility plan will serve as the cost basis for arriving at this funding level.

As a countywide or regional mobility plan is developed, the cost of individual projects implementing the plan must be estimated. Concurrently, expected revenue generated from existing sources such as motor fuels taxes, local option taxes, development agreements, and general revenue should be estimated. The mobility fee will be used to fund projects identified in the plan that are not addressed by committed revenue from other sources. The proportion of planned projects that will address existing backlogs, rather than new capacity, should be treated separately and not included in the target funding level.

The target funding level is reflected in the following equation:

$$\text{Target Mobility Fee Funding Level (TFL)} = \text{Cost of Mobility Plan} - \text{Committed Revenue}$$

Where

Committed revenue = gas tax revenue, revenue from pre-existing development agreements, etc.

The target funding level (TFL) is the amount of revenue that the fee will need to generate to fund planned mobility improvements in light of other committed revenue sources.

Application of the Methodology: Alachua County

The Alachua County Mobility Plan identifies the amount that will fill the funding gap between expected costs of plan projects and revenue from existing sources as \$111 million.

Testing Assumptions

- Target funding level (TFL) = \$111 million. This amount, approximately \$111 million though the 2030 horizon year, will be used to establish the mobility fee rate. Note that this target funding level includes only the improvements identified by Alachua County and not necessarily those that would be identified through a countywide or regional planning process.

Step 4: Estimate VMT growth

The next step is to estimate the expected growth in vehicle miles of travel within the county or region between the base year and the planning horizon year. This is used in calculating the mobility fee rate and can be estimated using a travel demand model (FSUTMS/CUBE). The difference between these VMT estimates represents the growth in VMT within the county or region.

$$VMT_{Growth} = VMT_{Horizon\ Year} - VMT_{Base\ Year}$$

This application of FSUTMS/CUBE can be readily accomplished in areas that have an established travel demand model and corresponding long range transportation plan (LRTP). Any changes to the model needed to accommodate the mobility fee approach can be made during the next LRTP update or as a separate analysis.

In some cases, data for a new horizon year must be developed. This may be accomplished through three major tasks: scenario generation and land use aggregation, travel demand modeling, and VMT computation discussed briefly below and in more detail in Appendix B.

1. Generate horizon year socio-economic data based on the adopted mobility plan and enter this data into the appropriate traffic analysis zones (TAZs) of the travel demand model. This task is commonly performed by MPOs during the development of the MPO long range transportation plan.
2. Run the travel demand model for each projected aggregated land use, generate the network report, and validate the results.
3. Estimate the VMT growth for the county/region.

$$VMT_{Growth} = VMT_{Horizon\ Year} - VMT_{Base\ Year}$$

Application of the Methodology: Alachua County

Alachua County is included in the study area and travel demand model for the Gainesville Metropolitan Planning Organization (MTPO). Therefore, this is the model used for testing.

Testing Assumptions

- Model assumes a 2009 base year and 2025 horizon year. The most recent long range transportation planning effort for the MTPO was completed in November 2005. As such, the FSUTMS/CUBE model used for this planning effort contains only the improvements in place in the 2005 base year, 2015, and in the 2025 planning horizon. Note that the 2025 population projection of 301,700 corresponds to recently released projections.³³
- The Gainesville MTPO travel demand model assumes a 2025 planning horizon while the Alachua County mobility plan assumes a 2030 planning horizon. This five-year difference is not expected to impact the results of this test; however, it does highlight the fact that travel demand modeling and MPO long range transportation plans are not always synchronized with local government land use and transportation plans.
- Improvements in the transit-based Alachua County mobility plan are not included in the Gainesville MTPO model. These improvements could not be incorporated into the model for the test due to time constraints of the research and the complexities of coding transit into the FSUTMS/CUBE model. The MTPO is beginning its five-year long range transportation plan update and estimates the County's planned improvements will be coded in the model by October 2009.

³³ "Projections of Florida Population by County, 2008-2035." University of Florida, Bureau of Economic and Business Research. Volume 42, Bulletin 152, March 2009.

- In addition, the Alachua County mobility plan calls for increased density of development within an area designated as Urban Cluster, on the western edge of the City of Gainesville. Location of development in the horizon year was not adjusted to increase density and intensity within the County’s defined Urban Cluster. Such changes will involve adjusting existing traffic analysis zones within the model and could not be accomplished within the study timeline.

Testing Results

1. 2009 base year VMT = 10,077,213. The year 2009 was chosen as the base year for mobility fee testing. The VMT for 2009 was obtained by interpolating values from the Gainesville MTPo model base year of 2000, 2015, and the planning horizon of 2025. Figure 1 illustrates the interpolated VMT.

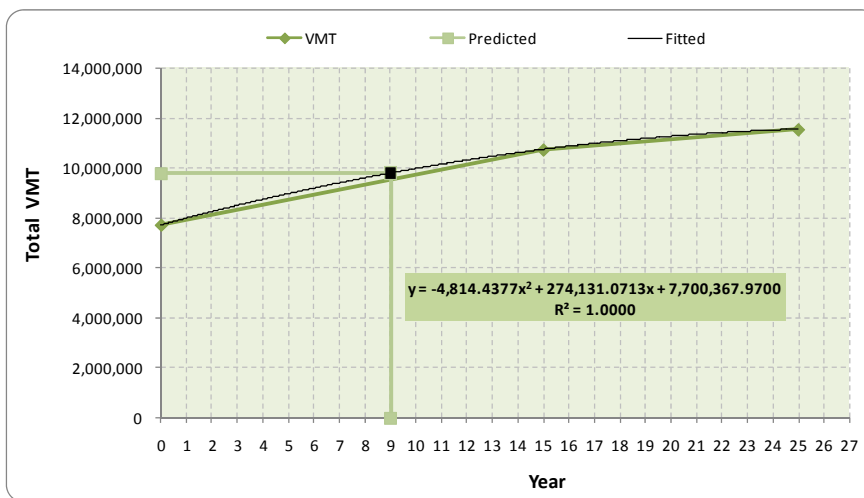


Figure 1. Interpolation of VMT

Information contained in the existing Gainesville MTPo model was used to estimate VMT growth in Alachua County between the base year and the planning horizon year. VMT growth is estimated to be 1,467,409.

$$VMT_{Growth} = VMT_{Horizon Year} - VMT_{Base Year}$$

$$1,467,409 = 11,544,621 - 10,077,212$$

Where
 Horizon Year VMT (2025) = 11,544,621
 Base year VMT (2009) = 10,077,212

Step 5: Establish the mobility fee rate

This step uses the target funding level obtained in Step 3 and the total VMT growth obtained in Step 4 to calculate the mobility fee rate. The resulting rate is closely tied to the planned land use scenario and corresponding transportation system. Accordingly, the mobility fee rate should be recalculated every time the mobility plan is amended or updated. Two options are provided for calculating the mobility fee rate per vehicle mile of travel – an average rate (fixed rate), or a location-based rate (variable rate) that varies by planning area.

Average rate

The average rate is a fixed rate that relies solely on vehicle miles of travel as the controlling factor. The rate is calculated by dividing the target funding level (TFL) by total VMT growth within the planning horizon as follows:

$$\text{Average Rate} = \text{TFL} \div \text{VMT}_{\text{Growth}}$$

Where,

$\text{VMT}_{\text{Growth}}$ = Total increased VMT within the planning horizon

TFL = Target mobility fee funding level

In this option, the same fee is charged for each estimated vehicle mile of travel regardless of the development's location within the planning areas of the county or region. The farther a development is located from an urban center, the greater the number of vehicle miles traveled and, therefore, the higher the mobility fee.

Location-based rate

The location-based rate varies the rate assessed per VMT according to whether the development is located in the urban center, the urban reserve, or the rural area. The resulting mobility fee structure will apply lower rates within planning areas designated for growth, such as high density, mixed-use urban centers. Conversely, rates will be increasingly higher for planning areas outside of urban centers, with the highest rate assessed to development in areas not yet planned for development, such as areas designated as rural and those outside of the urban service area boundary. This rate structure reinforces growth in or near urban centers and more accurately reflects the higher cost of extending services to development in rural areas. It represents a policy approach based on planning considerations. The intent is to encourage development in urban core and urban reserve areas where infrastructure is currently available or planned.

Planning Areas

Definitions for the working concept:

- **Urban center** is defined as the area within the urban service boundary that is primarily developed and includes downtown urban cores, regional activity centers, traditional towns or villages, and identified activity centers along transit corridors;
- **Urban reserve** is the remaining area within the urban service boundary that will be developed in the planning horizon; and
- **Rural** is the area outside of the urban service boundary and conservation areas where little development is planned.

Counties and regions will differ widely in terms of the number and size of the planning areas they define. Therefore, to calculate a location-based rate that will achieve the estimated target funding level relative to VMT growth within each planning area, it is necessary to standardize these areas as described in the following tasks:

1. Convert each type of planning area into an equivalent region. Delineated planning areas can be measured using geographic information systems (GIS) software. (Details on calculating equivalent regions are provided in Appendix C.).
2. Determine the distance from each planning area to the midpoint of the urban center expressed as $D_2/D_1, D_3/D_1 \dots D_n/D_1$ and shown in Figure 2. (Note that if D_2 is two times D_1 , then $(Rate_2 = 2 \times Rate_1)$; similarly if D_3 is three times D_1 , then $(Rate_3 = 3 \times Rate_1)$, as illustrated in Figure 2).

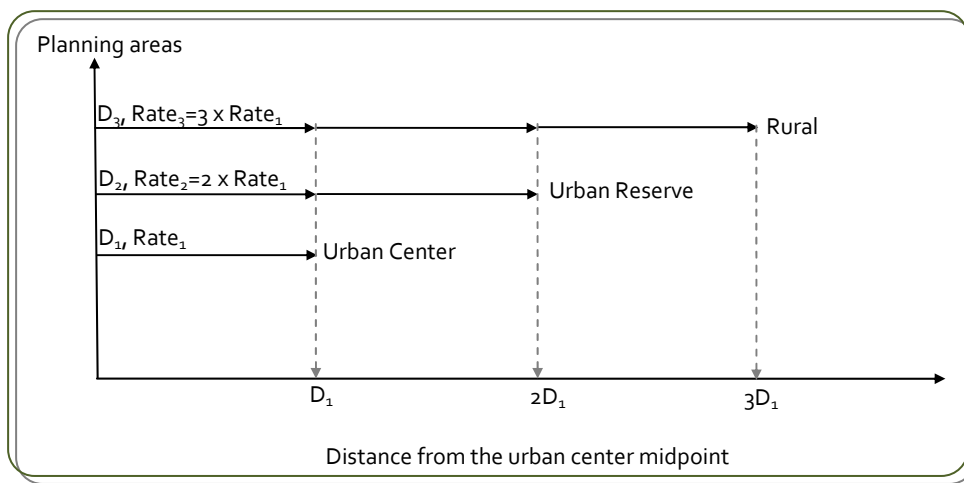


Figure 2. Ratios from planning areas to urban centers

3. Establish the ratio of the average distance from each planning area to the midpoint of the urban center. These ratios represent the proportionate difference in rates across the planning areas.
4. Estimate VMT for each planning area. The VMT growth estimated in Step 4 must be further broken down by planning area. Vehicle miles of travel for each planning area are denoted by $VMT_1, VMT_2 \dots VMT_n$ respectively.

Location-based rates may now be calculated for each planning area through the following series of equations:

1. Target funding level equation:

$$TFL = (VMT_1 \times Rate_1) + (VMT_2 \times Rate_2) + \dots + (VMT_n \times Rate_n)$$

Where,

VMT_n = VMT within planning area_n

$Rate_n$ = Rate within planning area_n

TFL = Target mobility fee funding level

- Determine ratio for each planning area: Use the ratio of distances between the planning areas and the urban center midpoint:

$$TFL = VMT_1 \times Rate_1 + VMT_2 \times \left(\frac{D_2}{D_1}\right) \times Rate_1 + VMT_3 \times \left(\frac{D_3}{D_1}\right) \times Rate_1 \dots VMT_n \times \left(\frac{D_n}{D_1}\right) \times Rate_1$$

- Solve for Rate₁:

$$Rate_1 = TFL \div [VMT_1 + \left(\frac{D_2}{D_1}\right) \times VMT_2 + \left(\frac{D_3}{D_1}\right) \times VMT_3 + \dots \left(\frac{D_n}{D_1}\right) \times VMT_n]$$

- Solve for the remaining rates:

$$Rate_2 = \frac{D_2}{D_1} \times Rate_1$$

$$Rate_3 = \frac{D_3}{D_1} \times Rate_1$$

$$Rate_n = \frac{D_n}{D_1} \times Rate_1$$

These calculations ensure that resulting location-based rates achieve the mobility fee target funding level relative to VMT growth within each planning area.

Application of the Methodology: Alachua County

Testing Results

Average Rate: The mobility fee average rate for Alachua County was determined using the results of Steps 3 (TFL = \$111 million) and 4 (VMT growth = 1,467,409). Applying the average rate equation, the mobility fee rate is \$76 per vehicle mile traveled.

$$\$76 = \$111,000,000 \div 1,467,409$$

Where
 TFL = \$111,000,000
 VMT Growth = 1,467,409

Location Based Rate:

Testing Assumptions

- Established boundaries in accordance with working concept planning area definitions of urban center, urban reserve, and rural. In the Gainesville area, the existing transportation concurrency exception area (TCEA) constitutes the urban center and the Alachua County Urban Cluster, as defined in their mobility plan, is the urban reserve. Due to lack of specific data and time constraints, possible urban center and urban reserves of other municipalities

within the County were estimated using the aerial photography of Google Earth. The hypothetical planning areas are illustrated in Figure 3.



Figure 3. Alachua County hypothetical planning areas.

The planning areas were converted to equivalent regions according to the working concept methodology. The distance between each planning area and the midpoint of the urban center was calculated ($D_2/D_1=1.53$ and $D_3/D_1=4.30$), and used to determine the ratio between the mobility fee rates for each area. The VMT growth generated from each planning area are urban center, 353,516, urban reserve, 391,851, and rural, 722,039. The target funding level was solved for the urban center rate resulting in a mobility fee rate of \$27.31 per vehicle mile traveled. The rates for the remaining areas are \$41.74 in the urban reserve area, and \$117.71 in the rural area. Results are show in Table 2.

$$TFL = (VMT_1 \times Rate_1 + VMT_2 \times Rate_2 + \dots + VMT_n \times Rate_n)$$

$$\text{To solve for Rate}_1: \$111,000,000 \div [353,516 + (1.53 \times 391,851) + (4.30 \times 722,039)] = \$27.31 = \text{Rate}_1$$

Table 2. Mobility Fee Location-based Rate by Planning Area

	Urban Center ₁	Urban Reserve ₂	Rural ₃
Area (sq mi)	52.2	69.8	847.6
VMT	353,516	391,851	722,039
Distance to midpoint of urban center (miles)	4.08	6.23	17.60
Ratio	1.00	1.53	4.30
LOCATION-BASED RATE	\$27.31	\$41.74	\$117.71

Step 6: Apply mobility fee

The final step is to apply the mobility fee to the estimated vehicle miles traveled of each proposed new development. The same travel demand model used to develop the fee rates, FSUTMS/CUBE, should be used to estimate VMT for new development. The mobility fee for a new development is equal to the computed VMT of the development multiplied by the mobility fee rate.

The travel demand model VMT computation may be performed by technical staff within the county/region or a qualified consulting firm subject to institutional review. Using travel demand modeling to determine the VMT may be unwieldy for applicants of small developments and/or rural counties. A general mobility fee table could instead be developed by averaging trip length by planning area. This table would be useful for small developments as well as local governments with limited technical expertise.

The mobility fee for an individual development would be determined using the process below. Reflect the proposed new development in the appropriate FSUTMS/CUBE model;

1. Use FSUTMS/CUBE to compute VMT on the roadway network;
2. Determine the mobility fee for the new development;
 - o Average rate
 - o Location-based rate

Application of the Methodology: Alachua County

A number of development scenarios were tested using the Gainesville MTPo regional model.

Testing Assumptions

Twenty-seven test scenarios were conducted using three municipalities, including Gainesville, Alachua, and Newberry, the three planning areas, and three development scenarios. The development scenarios included:

- Residential - 120 single family units
- Commercial - 200,000 square feet
- Mixed use
 - o Free-standing discount superstore – 210,000 ft²
 - o High-turnover (sit-down) restaurant – 15,000 ft²
 - o Single-family detached unit – 100 du

Data for six of the test scenarios is used to illustrate testing results. Figure 4 illustrates VMT for a 120 dwelling unit residential development located in the urban reserve planning area of each municipality. Table 3 shows the mobility fees for the sample residential development. Lines in red illustrate portions of the roadway network that carry the majority of the development traffic. Employment in Gainesville is a strong attractor resulting in higher VMTs for residential

development in the smaller municipalities. The average mobility fee rate increases accordingly. The difference between the location-based mobility fee among the municipalities is low because development is within the urban reserve planning area in all three cases.

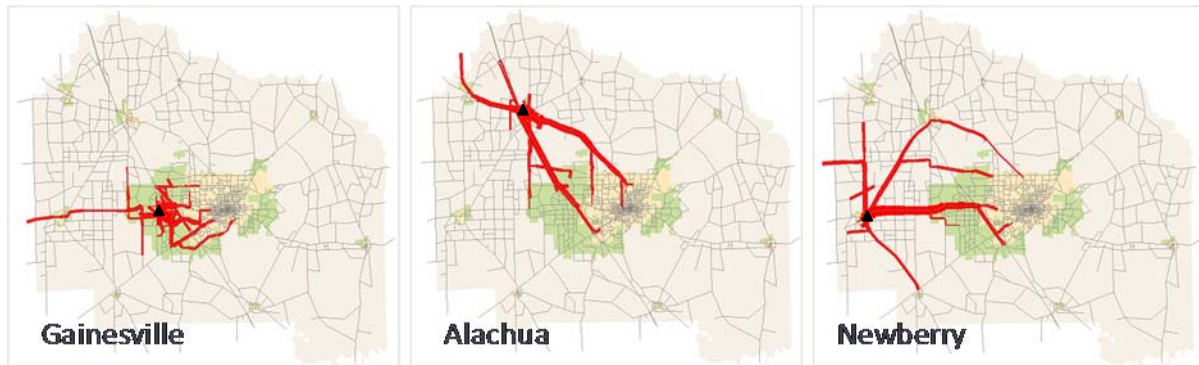


Figure 4. VMT from residential development in Gainesville, Alachua, and Newberry

Table 3. Mobility Fees Applied to Development in Gainesville, Alachua, and Newberry

	Gainesville	Alachua	Newberry
VMT	6,528	7,471	9,232
Average	\$498,828	\$565,147	\$698,308
Location-based	\$272,523	\$311,881	\$385,367

Figure 5 illustrates VMT for a mixed-use development located in each planning area of Gainesville. Table 4 shows the mobility fees for the sample mixed-use development. Lines in red illustrate portions of the roadway network that carry the majority of the development traffic. In this case, the VMT is greater as the development is situated farther from the urban center and the average mobility fee rate increases accordingly. The location-based mobility fee rate illustrates a great difference between the mobility fee for developing in the urban center and urban reserve areas compared with developing in the rural area.

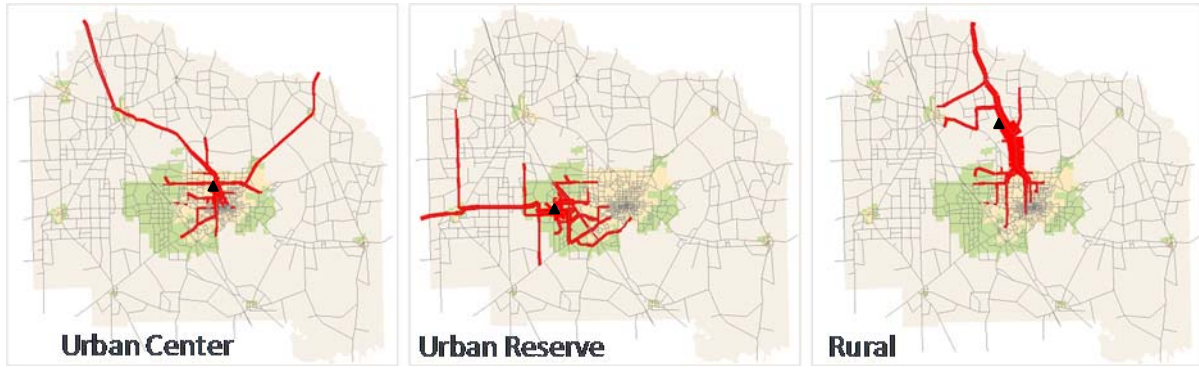


Figure 5. VMT from mixed-use development in planning areas of Gainesville

Table 4. Mobility Fees Applied to Development in Gainesville Planning Areas

	Urban Center	Urban Reserve	Rural
VMT	44,805	54,075	61,333
Average	\$3,389,177	\$4,090,402	\$4,639,436
Location-based	\$1,223,472	\$2,257,320	\$7,219,296

The hypothetical test results reveal that the two approaches – the average rate and the location-based rate – produce very different fees for new development. When applying the average rate, the difference in fee rates among planning areas is modest, particularly near major urban centers. New development near smaller urban centers generates greater VMT and a higher fee because trips are attracted to larger urban centers. Overall, the average rate is likely to have a modest influence on development location.

The location-based rate results in a much higher mobility fee for new development in areas not planned for development and lower fees in urban center and urban reserve planning areas. As a result, application of this approach may potentially have a greater influence on development location. Additional analysis of this approach is necessary to ensure the approach complies with applicable laws and avoids double-charging.

OPTIONAL FUNDING MECHANISM

Mobility needs in Florida go well beyond the capacity needed to serve new development. Cities and other urban centers require funding to improve sidewalks, bicycle facilities, and various types of transit, as well as revenue for transportation demand management programs. Providing a safe, comfortable, and attractive environment for pedestrians and bicyclists in urban centers and

convenient access to transit within and between these centers is essential to reduce automobile use and vehicle miles traveled.

Capital facilities for these alternative modes and long-term operating costs, particularly for transit, cannot be funded entirely through a mobility fee on new development. Local governments will need additional funding mechanisms to support these growing mobility needs. Although taxes provide some transportation revenue, Florida continues to experience significant transportation funding shortfalls. Recent constitutional amendments have reduced local ad valorem revenue and most jurisdictions with significant transportation backlogs have already exhausted existing funding options. In addition, motor fuel tax revenue has not kept pace with system costs and demands and revenues that are available are increasingly needed to improve the Strategic Intermodal System and other important state highways.

"A sustainable regional investment program must consider both types of growth – development at the fringe and redevelopment in the core. The two are conceptually different and require different approaches to transport investment."

Marlon G. Boarnet

As a result, finding adequate funding to address alternative modes of transportation and other localized mobility needs is the most challenging issue. Additional local transportation funding options are needed in Florida Statutes to support such improvements. Therefore, the working concept for mobility fees proposes a new optional mechanism for use by local government in Florida – a transportation utility fee. An adaptation of the transportation utility fee concept would provide an additional stable revenue source for funding these localized and ongoing mobility needs, particularly in areas where existing funding options are already in place.

The adapted TUF program would have two principal elements: capital and operations (including maintenance and administration). Because the nature of demand for transportation facilities varies by facility, facility demand would be calculated in different ways. Two methods were considered: vehicle miles traveled (VMT) and functional population. VMT calculations are commonly used to apportion road capital costs among different land uses. The adapted TUF could be calculated through the planning horizon by dividing the projected capital and operating cost budget by the VMT generated by existing land uses:

$$\text{Transportation Utility Fee} = \frac{(\text{Budgeted Capital+Operating Costs})}{\text{VMT Generated by Existing Uses}}$$

Generally, calculating VMT-based fees would apply standard impact fee methodologies already used throughout Florida with one important adjustment: the adapted TUF would need to be aligned with local property tax assessor records to capture every property within the prescribed fee boundary, rather than Institute of Transportation Engineers' land use codes, as is customary with impact fee schedules.

A related adjustment is calculating the VMT for each assessor record. Because assessor records include the size of structures, VMT for each assessor code can be estimated on a per square-foot basis. When multiplied by the size of the structure, this would provide a proportionate-share relationship between the land use, VMT production, and demand on road facilities. The number of bedrooms is an alternative method for estimating VMT for each assessor code.

Another approach for measuring transportation demand is the concept of functional population, pioneered by James Nicholas. Functional population is the effective population being served over the course of a day. For example, if 100,000 people live and work in a community, and if another 60,000 commute into the community to work an 8-hour (one-third day), the functional population is $100,000 + (60,000 \times 1/3) = 120,000$.

CONCLUSION

This report presents the results of an exploratory analysis of mobility fee applications in Florida. It proposes an impact fee that is modified for sensitivity to vehicle miles travelled. The approach presented here anticipates regional cooperation in the development and adoption of a mobility plan that includes all transportation modes.

A number of existing systems and fees may be affected by implementation of the mobility fee working concept. Further development of a mobility fee concept might address the relationship of the mobility fee to transportation concurrency management systems, local government impact fees, DRI proportionate fair share, and proportionate fair share mitigation. Depending on plans for existing impact fee revenue, abandoning existing fees may cause a mobility fee to be very high, particularly if addition funding mechanism is not an option.

Consideration also must be given to legal limitations of the mobility fee. Because the proposed mobility fee concept is an impact fee, certain concerns arise in applying an improvements-driven method of determining the fee. One is whether the fee may be construed as requiring new development to pay for backlogs, which is expressly prohibited by statute. As proposed, the working concept requires the proportion of planned projects that will address an existing backlog to be separated from the target mobility fee funding level. Another concern is the nexus required between the impact fee and multimodal improvements established by the mobility plan. A method to address this concern will need to be clearly defined as part of the mobility fee program. A consumption-based approach using the mobility plan to establish typical costs which are then applied based on VMT may provide more flexibility in expenditure and be more defensible than the improvements-based approach.

Another issue is whether the fee will serve as an adequate incentive for compact urban development. Transportation concurrency management is not the only barrier to urban infill and redevelopment. Difficulty in amassing property, complex development requirements, contemporary land development codes and standards, and lengthy development approval processes all increase the cost of infill.

Local governments should create additional incentives to encourage infill development by addressing these other barriers. Mobility fee reductions or waivers, however, can adversely impact transportation revenues and increase funding shortfalls and, therefore, should be limited to maximize implementation of the regional mobility plan. The amount of any mobility fee reduction should be offset by clear benefits to the mobility plan. An alternative funding source (i.e., general fund, tax increment financing, or transportation utility fee) should also be identified to make up revenue lost by granting impact fee reductions or waivers.

The proposed working concept suggests the development of a regional mobility plan. However, localized mobility needs clearly also need to be addressed. Such needs may require another funding alternative, such as a transportation utility fee. Alternatively, a local impact fee may also be needed to fund localized improvements not reflected in the mobility plan. This raises additional concerns relative to cost of infill and the need to avoid double-charging development for its impacts.

The proposed methodology relies on Florida's existing travel demand model, FSUTMS/CUBE. Because the model was not designed for this purpose, further research will be needed to ensure its adequacy for the task.

Finally, a mobility fee in Florida should be clearly authorized by statute. The statute should identify under what circumstances the fee may be implemented, including planning considerations and institutional arrangements. It should also consider provisions of recent legislation, including HB 697, HB 7135, HB 227, HB 1021, and SB 360. These new laws significantly altered existing planning and growth management requirements in Florida (see sidebar).

SB 360, enacted while the current study was nearing completion, also directly addresses mobility fees. It calls for the state to evaluate and consider implementation of a mobility fee to replace the existing transportation concurrency system. It further states that the mobility fee approach should provide for mobility needs, ensure that development mitigates its impacts on the system in

Recent Legislation

HB 7135 and HB 697 require MPOs and local governments, respectively, to incorporate strategies to reduce greenhouse gas emissions and integrate transportation and land use planning to provide for sustainable, energy efficient development.

HB 227 is an impact fee bill that requires the local government to bear the burden of proof during any impact fee challenge. The entity imposing the fee would be required to prove that the application and amount of the fee meets the state requirements for imposing impact fees.

HB 1021 establishes a definition of "backlog" as a condition where the level of service standard is exceeded by existing and reasonably anticipated traffic growth, and where level of service is exceeded by background trips from any source other than the DRI under review.

SB 360 includes such provisions as the elimination of the DRI program, establishing transportation concurrency exception areas, and expedited review of comprehensive plan amendments for areas having population densities greater than 1,000 people/square mile. It also calls for further study of mobility fees in Florida.

approximate proportionality to those impacts, fairly distribute the fee among the governmental entities responsible for maintaining the impacted roadways, and promote compact, mixed-use, and energy-efficient development.

The Florida Departments of Community Affairs and Transportation were instructed to develop and submit a joint report to the legislature on the mobility fee methodology study no later than December 1, 2009. The report is to include recommended legislation, a plan to implement the mobility fee as a replacement for local transportation concurrency management systems and an economic analysis of implementation of the mobility fee. Further research on the mobility fee will be needed to address these considerations.

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APPENDIX A: OVERVIEW OF MOBILITY FEE APPROACHES

(Excerpt from Florida Mobility Fee Study Phase 1 Report-Policy analysis and Methodology, March 25, 2009)

Building on the considerations noted above, this study has identified three general approaches that offer potential for a mobility fee. The first approach is a road user fee aimed at users on a statewide basis. This fee differs considerably from the other approaches, because current applications intend it as a replacement to the motor fuels tax. While its complexities render it infeasible for fulfilling the desires of a mobility fee, it is worth mentioning as an increasingly popular stable revenue source. The second approach considers an impact fee for new development modified to increase sensitivity to VMT and based on multimodal capacity needs. The third approach is a transportation utility fee aimed at all users within a specified area.

Approach 1 – Road User Fee

The road user fee is generally proposed as a replacement of the gas tax and is charged based on the number of vehicle miles travelled in a given period. The approach described here is based on Oregon's Mileage Fee Concept and Road User Fee Pilot Program.¹⁴ A similar approach is being pilot-tested in Iowa, and North Carolina and Rhode Island are also discussing this option. The Oregon Mileage Fee Concept is designed to replace gas tax revenues in light of more fuel efficient vehicles and decreased driving when gas prices rise.

As implemented through Oregon's pilot program, the fee features easy administration, payment, and collection. Information was gathered through in-vehicle equipment and conveyed to a central database during the fueling process while maintaining the user's privacy. The amount of the fee has been calculated based on a 20-mile per gallon average. "In order to provide revenues that are equivalent, on a per-mile basis, to those deriving from the current 24-cent-per gallon gas tax, ODOT found a flat (or average) mileage fee rate would be approximately 1.2 cents per mile."¹⁵ Implementation would occur over a 30-year period with completion by 2040.

Additional testing performed during Oregon's pilot program revealed behavioral changes relevant to correlating a mobility fee to VMT. The program tested two types of mileage fees, 1) a replacement for the gas tax (1.2 cents per mile), and 2) application of congestion pricing in addition to the mileage fee. Additional fees were charged for travel within a congestion zone during rush hour, a practice commonly known as congestion pricing. Basic changes in driver behavior included a 12 percent reduction in daily VMT. In addition, drivers subject to congestion pricing reduced both daily VMT and rush hour VMT.

¹⁴ Oregon's Mileage Fee Concept and Road User Fee Pilot Program is a complex well-documented approach under serious consideration in the state. The final report and additional information are available at <http://www.oregon.gov/ODOT/HWY/RUFPP/>.

¹⁵ Oregon's Mileage Fee Concept and Road User Fee Pilot Program, Final Report, *op cit*.

Gas tax revenue has not kept pace with transportation system needs and reliance on impact fees has not filled the ever-widening gap. Driver habits changed dramatically with higher fuel prices causing a decline in motor fuels tax revenue. In addition, more fuel efficient vehicles demanded by consumers today also result in lower gas tax revenue yield. Applying the road user fee approach to a mobility fee may provide a continuing revenue source that is not limited to new development.

Applicability to Mobility Fee: The road user fee could be applied in addition to or as a replacement for the current motor fuels tax; however, if proposed as an addition to motor fuels taxes, additional legal questions should be explored. Road user fees, particularly when combined with congestion pricing, were shown in the Oregon Pilot Program to influence driver behavior and reduce VMT. Over time, this effect on VMT may influence market demand and development location. Greater per mile cost of driving is likely to increase demand for housing closer to employment and services thus encouraging more compact, mixed use development. Such behavior was recently reflected through driver behavior in response to higher gas prices.

Because the user fee is charged to end users, the fee may be considered equitable to all new development. Revenue from this source may be expended on all modes to provide system capacity. The time it would take to study and fully implement such an approach is a clear disadvantage of the road user fee. Implementation would require legislative action and development of program specifics. In addition, all vehicles and filling stations must be outfitted with appropriate equipment. While the road user fee is clearly a viable option as a statewide revenue source, extensive implementation requirements prohibit its application in the near term.

Approach 2 – Modified Impact Fee

The second approach is essentially an impact fee modified to increase sensitivity to vehicle miles traveled by trips from new development. Impact fees may be defined as “A monetary charge imposed by local government on new development to recoup or offset a proportionate share of public capital costs required to accommodate such development with necessary public facilities.”¹⁶ They are a method of ensuring that new development pays its pro rata share of infrastructure costs needed to serve new growth.

Impact fee programs may be either demand driven (most prevalent), plan based (less prevalent), or a combination of the two (least prevalent).¹⁷ Demand-driven approaches translate new auto trips into a cost per trip based on the cost to improve a mile of roadway. Plan-based approaches arrive at the fee by determining each development’s fair share of the road improvement budget in the capital improvements program.

¹⁶ Nicholas, James C. and Arthur Nelson. *Determining the Appropriate Development Impact Fee Using the Rational Nexus Test*. Journal of the American Planning Association. Chicago: Winter 1988, Vol. 54, Iss. 1, pp. 56-67.

¹⁷ Cooper, Connie B. *Transportation Impact Fees and Excise Taxes: A Survey of 16 Jurisdictions*. PAS Report No. 493, American Planning Association, July 2000.

Transportation impact fees are commonly used throughout Florida and are predominantly demand driven, using average assumptions regarding trip length and the location of development. They have historically focused on local roadway improvement needs. However, local governments are increasingly interested in addressing state facility needs as deficiencies on state roads have become a hindrance to growth. Transit is largely ignored by most impact fee programs; impact fee laws limit the use of fees to capital improvements but remain silent on operating costs, which are essential to transit. More local governments would likely consider funding transit if provided legislative authorization to incorporate transit capital and operating costs into transportation (road) impact fee programs.

Most transportation impact fees were developed using the number of trips generated multiplied by the average trip length (or vehicle miles traveled) as a basic component. The number of trips generated by a land use is multiplied by the average length of those trips and by the percentage of “new” trips. New trips are those that introduce additional travel into the transportation network and are not “captured” from existing pass-by traffic. A factor of two in the denominator reflects the sharing of responsibility for a trip between the trip origin and the trip destination.

$$\text{Attributable New Travel} = \frac{(\text{Vehicle Trip Ends} \times \text{Average Trip Length})}{2} \times (\% \text{ New Trips})$$

Where

Attributable New Travel: measured in vehicle miles per day

Vehicle Trip Ends: measured per day

This equation produces only a generalized measure of additional vehicle miles of travel. The average trip length is determined by land use and averaged over a large area, such as a county, rather than according to area types such as urban, urban reserve, or rural. In addition, the cost basis for transportation impact fees is often the average cost of constructing a lane mile of road. For these reasons, the resulting fee does not account for the increased cost of improving roads to serve outlying areas. While the cost to construct roads in outlying areas may be lower per lane mile, disparate development patterns necessitate the construction of more lane miles, most not found in existing long-range transportation plans. In most cases, the cost of providing transit service is not included in impact fee calculations.

An impact fee formula can use trip lengths or VMT that accurately reflect area type to create a more targeted fee. The fee per vehicle mile could either be based on an average cost of a lane mile of roadway¹⁸ (demand driven) or the estimated costs of transportation improvements in an adopted mobility plan (plan based). These costs could be further broken down by location and area type (urban, suburban, rural). For a demand-driven approach, it may also be possible to incorporate

¹⁸ Because the system is based on vehicle miles of travel, roadway improvement costs would provide a logical cost basis. Fees could be expended on transit and other modal improvements, provided a nexus is established between new development and improvements to be funded.

average measure of transit cost, building on the concept of functional population described later in this report.

Applying a VMT emphasis to impact fees would better reflect actual system consumption. Development in the urban core where transportation infrastructure has long been established, density and land use mix is higher, and VMT is generally lower, would be subject to the lowest mobility fee rate. Development in less urbanized areas would be subject to the highest rates, because density and land use mix are minimal, VMT is generally much higher, and a higher percentage of the costs of providing new transportation infrastructure and services to these areas could be attributed to new development.

Fee structures could also incorporate a surcharge for development in areas of a jurisdiction or region (where regional agreements are established) that are not planned for development in the planning horizon. This would include any area outside of established urban service boundaries. This may foster a reduction in VMT and advance other planning objectives, such as curbing urban sprawl and promoting compact, walkable urban environments. The modified impact fee employs this concept.

Fee Systems that Address VMT

A number of local governments have or are considering impact fees with a specific focus on vehicle miles traveled. Charlotte County, Florida is considering a VMT-based impact fee developed using the functional population concept described in Approach 3 (see also Appendix C). While the Charlotte County example is limited to roads, a similar approach may be considered for application to transportation improvements for all modes.

The Charlotte County approach involves establishing three zones: urban, urban reserve, and rural. Total transportation improvement costs for each zone are calculated based on the long range transportation plan. Committed funding is subtracted. Daily VMT is established based on land use and by zone. Net transportation system capacity costs are then calculated for each zone using: a) the capacity of a new facility or expansion of an existing facility, b) the improvement cost by type of improvement and zone, and c) the net transportation improvement cost by zone. The result is that fees would increase outside of the urban zone by roughly 100% -200% in the urban reserve zone, and in the rural zone, fees increase roughly 150% – 230% in the rural zone. Both zones have outliers that are significantly lower.

The City of Woodinville, Washington (pop 9,900) north of Seattle has a transportation impact fee ordinance that includes a fee schedule reflecting varying VMT characteristics by region of the City. The City combined its traffic analysis zones (TAZs) into four separate districts and used its transportation demand model to forecast the VMT created by each development that applied for a permit. The impact fee varies by district based on the average VMT impact in that district. A similar approach is used in Greeley, Colorado.

Expenditure on Alternative Modes and Trip Reduction

In addition to implementing VMT-focused impact fees, some local governments spend impact fee revenues on alternative modes and trip reduction strategies. A study of traffic impact fees in the mid-90s by the Santa Barbara County Association of Governments (SBCAG) found that more than 10% of SBCAG municipalities allocate a portion of transportation impact fee revenues for alternative transportation mode improvement.¹⁹ Examples of alternative transportation modes funded by impact fee revenues include “new or upgrades of existing bicycle and pedestrian facilities, signage programs, transit capital improvements (new buses, shelters, terminals), bus pull-outs, rideshare/carpool and parking management programs, park and ride lots and light rail station improvements.”²⁰

The use of impact fees for alternative modes is clearly allowed by California statutes and case law. The study identified four basic approaches used by these jurisdictions to establish a nexus between new development and the improvements to be funded using impact fee revenue:

1. Demonstration of a direct relationship. The existing alternative mode will be impacted by the development, and improvements are needed to handle the increase in mode use.
2. An indirect method which equates a mode shift. This involves relating the alternative mode improvements to be funded by the impact fee to an increase in street capacity, and thus, a reduction in traffic impact.
3. Project or location specific. This approach involves negotiation with the development to provide funds for a specific improvement that will directly serve the development, such as a bus stop, bike path, or transit shuttle.
4. Policy-based. A capital improvement program with traditional street and road projects and alternative mode projects is adopted as part of the ordinance establishing the fee.

The Palo Alto (CA) Transportation Impact Fee Ordinance and Expenditure Plan is an example of how a local government might invest impact fee revenues in accomplishing both multimodal improvements and advancing regional trip reduction targets. The impact fee program advances a policy in the City’s comprehensive plan to provide effective alternatives to automobile travel and reduce vehicle trips by 10% Citywide by the year 2010, in accordance with California law.

The City charges new development for 7.6% of the cost of the transportation expenditure plan. This represents the proportion of 2025 vehicle trips that are expected to be generated by new development. All trips that originate or terminate at a new development are counted excluding pass-by trips. Proceeds from the impact fee contribute toward expanding the person trip (as opposed to vehicle trip) capacity of the City’s multimodal transportation system. The impact fee

¹⁹ Ann Lawler and Michael Powers. *Traffic Impact Fees—Survey Results*. American Planning Association, California Chapter, undated (circa mid to late 90’s); Ann Lawler. *Traffic Impact Fees Survey*. Santa Barbara, CA: Santa Barbara County Association of Governments, May 1997.

²⁰ Lawler and Powers, op cit.

revenue expenditure plan includes citywide transportation demand management, expanded shuttle service, bicycle facilities, and computerized traffic management.

Land Use and Transportation Planning

A modified impact fee for mobility must be accompanied by an effective mobility plan. Such a plan should address not only modal improvements, but land use considerations relative to density, design, and mix. Land use plans should address the location, type, and magnitude of development that is planned within the jurisdiction. A goal is to focus growth into urban core areas, suburban activity centers, and regional transit centers. These areas should be walkable, mixed-use environments with relatively high densities and connected by transit.

As development is driven into urban areas, careful integration of that development into the urban context is essential. One way to foster growth that is sensitive to context is through the use of form-based codes that address the size and scale of buildings in relation to the public realm and each other. In addition, local government comprehensive plans and land development regulations can support local and regional mobility by requiring basic features of multimodal facilities, such as high levels of network connectivity, sidewalks, transit stops, bicycle racks, shade trees as part of site development.

Applicability to Mobility Fee: Modifying the standard impact fee equation with sensitivity to VMT combined with effective planning should foster compact, mixed use development through increased costs of developing outside of urban centers and other areas not yet planned for development. Revenue from a modified impact fee approach may be used for all transportation system improvements.

Unfortunately, the modified impact fee is not a stable or sufficient revenue source for ongoing transit operations; nor is it sufficient to fully fund capital improvement needs or long-term system maintenance. Additional revenue sources will still be needed in urban areas to maintain an efficient multimodal system.

Implementation will require standard set-up, including an impact fee study to establish the cost basis and fee schedule. After that, administration will be no different than that of current impact fee programs. Because fee calculations are based on vehicle trips, rational nexus concerns may be raised regarding the expenditure of funds on alternative modes. Therefore, a clear method for establishing a rational nexus should be established, building on the premise that provision of additional transportation modes increases overall system capacity to accommodate person trips.

All new development is required to pay impact fees resulting in equitable treatment among developers; however, fees charged only to new development cannot be used to fund existing backlogs.²¹ Therefore, a method of differentiating backlog from new capacity in a multimodal context will be needed. For example, new transit capacity might include route extensions and

²¹ A backlog is defined as an identified deficiency where existing traffic volume exceeds the adopted level of service standard for the facility.

service enhancements to increase headways in an adopted transit development plan. Despite these drawbacks, the modified impact fee may be the best approach for a mobility fee and forms the basis of the working concept detailed later in this paper.

Approach 3 – Adapted Transportation Utility Fee

The third approach is adapted from the transportation utility fee (TUF). This type of fee (sometimes known as a street maintenance fee, road user fee, or street utility fee) is similar to other utility fees and may be used for capital facilities, maintenance, operations, and administration. Like other utility fees, all property within an established district is assessed a fee in accordance with the estimated use of the utility. In this case the utility is the transportation network. Fees are determined by land use and placed in an enterprise fund.

The transportation utility fee is not currently used in Florida although Orlando considered the approach a number of years ago and Port Orange, Florida adopted one in the early 1990's which was later struck down by the Florida Supreme Court. The Court found the fee to be a tax not authorized by general law.²² The opinion states, "The circuit court cites to storm-water utility fees as being analogous to the transportation utility fee. However, storm-water utility fees are expressly authorized by section 403.031, Florida Statutes (1993). Similarly, various municipal public works and charges for their use are authorized by chapter 180, Florida Statutes (1993)." Addressing transportation facilities and services in the definition of public utilities in Section 180.07 is one way to resolve this concern.

Transportation utility fees are in use in several states. Approximately nineteen local governments in Oregon currently charge a transportation utility fee to finance road maintenance. It is a monthly fee based on use of the transportation system that is collected from residences and businesses within the city limits. The fee is based on the number of trips a particular land use generates and is collected through a city's regular utility bill. Revenue is used for maintenance costs on public roadways. The State of Texas has road utility districts where local governments are the decision making body, but the district is a separate legal entity and funds are separate from the general fund.²³

Transportation utility fees may become increasingly popular as transportation system operating and maintenance revenues, primarily motor fuels taxes, decline. The methods for determining the fees are simple and reminiscent of the early days of impact fees. Early TUF approaches and those used today throughout Oregon have notable limitations. First, they apply only to operations and maintenance of roads, and not all elements of the mobility system. Second, they usually rely on impact fees to finance the expansion of road capacity. Third, with few exceptions, the "denominator" is trips and not trip length which means they are average cost mechanisms that apply to all development regardless of location, density, and especially distance. As a result, areas of a jurisdiction that yield lower facility costs essentially subsidize those that yield higher costs.

²² State of Florida, v. The City of Port Orange, Florida, 650 So.2d 1, 19 FLW S563, 1994 Fla. SCt 8286

²³ <http://law.onecle.com/texas/transportation/chapter441.html>

Adapting the Transportation Utility Fee

Using the transportation utility fee as a starting point, the research team²⁴ developed an alternative concept for the mobility fee. This approach combines the basic elements of transportation utility fees, but adapts them using the well-developed methods for calculating road impact fees (see Appendix A).

Unlike TUF programs, but like road impact fee programs, the adapted TUF approach considers variations in costs of all transportation components considering location, distance, and density. The service area concept used in road impact fee programs is also applied to introduce locational considerations to fee determinations – something not previously done for TUF programs. In addition, it addresses variation in demand on transportation systems, based on a more refined assessment of different land uses than traditional TUF programs.

The adapted TUF program would have two principal elements: capital and operations (including maintenance and administration). Because the nature of demand for transportation facilities varies by facility, facility demand would be calculated in different ways. Two methods were considered: vehicle miles traveled (VMT) and functional population. These are described below.

Facility demand measured in VMT. VMT calculations are commonly used to apportion road capital costs among different land uses. The adapted TUF could be calculated through the planning horizon by dividing the projected capital and operating cost budget by the VMT generated by existing land uses:

$$\text{Mobility Fee} = \frac{(\text{Budgeted Capital} + \text{Operating Costs})}{\text{VMT Generated by Existing Uses}}$$

Generally, calculating VMT-based fees would apply standard impact fee methodologies already used throughout Florida with one important adjustment: the adapted TUF would need to be aligned with local property tax assessor records to capture every property within the prescribed fee boundary, rather than Institute of Transportation Engineers' land use codes, as is customary with impact fee schedules. A related adjustment is calculating the VMT for each assessor record. Because assessor records include the size of structures, VMT for each assessor code can be estimated on a per square-foot basis. When multiplied by the size of the structure, this would provide a proportionate-share relationship between the land use, VMT production, and demand on road facilities. The number of bedrooms is an alternative method for estimating VMT for each assessor code.

Facility demand measured in functional population. Another approach for measuring transportation demand is the concept of functional population, pioneered by James Nicholas.

²⁴ National experts and co-authors of this report, Arthur C. Nelson, Ph.D., FAICP, Presidential Professor and Director of Metropolitan Research University of Utah and James C. Nicholas, Ph.D., Emeritus Professor of Law and Urban and Regional Planning University of Florida developed this approach as detailed in Appendix A: "An Application of the Utility Enterprise Fund Concept to Finance Transportation Systems in Florida."

Functional population is the effective population being served over the course of a day. For example, if 100,000 people live and work in a community, and if another 60,000 commute into the community to work an 8-hour (one-third day), the functional population is $100,000 + (60,000 \times 1/3) = 120,000$. The functional population concept has been applied in the Aventura, Florida draft transportation mitigation impact fee and in the Charlotte County, Florida proposed impact fee ordinance.

Aventura, Florida is considering a transportation mitigation impact fee charged to all new development located within the city's transportation concurrency exception area (TCEA). Revenue is used to fund the expansion, operation, and maintenance of the City's circulator system within the TCEA. In this case, the functional population concept was applied to calculate a one-time transportation mitigation impact fee on all new developments. The functional population is a combination of permanent residents, seasonal residents, and visitors that use public services. Fees are charged per dwelling unit (approximately \$800 per unit) or per square foot for non-residential development (ranging from \$1,200 to \$2,500 per square foot). The draft Aventura ordinance adopting this system is included as Appendix B: Aventura Ordinance. The City has delayed adoption of this ordinance due to current economic conditions.

In Charlotte County, Florida, the functional population concept was used to calculate VMT-based impact fees (see Appendix C). Data regarding dwelling unit size and occupancy within the county were analyzed to show proportionality between dwelling unit size and number of occupants as well to determine the size of the average dwelling unit. To establish the impact fee per square foot, the impact fee for the average dwelling unit is determined and then divided by average size of dwelling units to get the fee per square foot of living area. Other aspects of the ordinance, which are more pertinent to the modified impact fee, are described under Approach 2.

Legislative Authorization

The adapted transportation utility approach is a user fee. Its use maybe acceptable if provided as a local option to augment existing funding methods. One implementation mechanism may be within the transportation concurrency backlog authority concept already available in Florida statutes. The purpose of the authority is to plan and finance improvements to one or more transportation facilities with an identified concurrency backlog. One method authorized to fund the plan's implementation is a local concurrency backlog trust fund based on tax increment financing. This legislation could be modified to include an adapted transportation utility fee as an additional funding mechanism. Because recent property tax changes and economic conditions have crippled tax increment financing revenue, the adapted transportation utility fee may prove to be a viable alternative funding source.

Another consideration is that the adapted TUF could be authorized for local use similar to a special assessment district. This would require a referendum and could be based on other stated conditions, such as existing urban areas with significant transportation backlogs.

Applicability to Mobility Fee: The adapted transportation utility fee offers a new approach to funding transportation mobility in Florida by treating transportation facilities, as well as maintenance and operation as a utility. The resulting revenue may be used to fund all aspects of transportation mobility. Application through a rate scale tied to transportation facility use is equitable to all fee payers.

Implementation of the fee will be somewhat complex, particularly initial studies and system set-up through the property tax assessor’s office. Administration beyond that point will be routine invoicing, collection, and distribution of revenue. This type of fee is expected to have some impact on reducing VMT and fostering compact, mixed use development by increasing modal alternatives within urban centers.

Summary of Approaches

In summary, the three approaches described above constitute the possibilities for application as a mobility fee. Table A1 compares the attributes of these approaches.

Table A1. Mobility Fee Approach Attributes

FINANCING FEATURE	APPROACH 1 ROAD USER FEE	APPROACH 2 MODIFIED IMPACT FEE	APPROACH 3 ADAPTED TRANSPORTATION UTILITY FEE
FOSTERS COMPACT, MIXED-USE DEVELOPMENT	Yes	Yes	Yes
ASSESSMENT BASE	All road users	New development	All properties in the district
MULTIMODAL REVENUE	High	Moderate	High
CAPITAL REVENUE	High	High	High
OPERATIONS/MAINTENANCE REVENUE	High	Low	High
REVENUE PREDICTABILITY	Recurring / Stable	One-time payment / Cyclical	Recurring / Stable
BACKLOG FINANCING	Yes	No	Yes
ASSESSMENT VARIES BY VMT OR LOCATION	Yes	Yes	Yes
EASE OF IMPLEMENTATION	Difficult	Moderate	Moderate

APPENDIX B: ESTABLISHING THE PLANNING PERIOD

The growth in vehicle miles of travel expected for the county or region through the planning horizon year is estimated using the travel demand model (FSUTMS/CUBE). The resulting growth in VMT is used in calculating the mobility fee rate. In short, VMT is estimated for the base year and the planning horizon year for the county/region with difference between these VMT estimates being the growth in VMT.

$$VMT_{Growth} = VMT_{Horizon\ Year} - VMT_{Base\ Year}$$

Application of FSUTMS/CUBE for Step 4 of the mobility fee model will be much easier for areas that already have an established travel demand model and corresponding long range transportation plan (LRTP). This mobility fee approach can be incorporated within the next LRTP update.

Calculating VMT growth is comprised of three major tasks: scenario generation and land use aggregation, travel demand modeling, and VMT computation. A summary of the tasks is presented below:

1. Generate horizon year socio-economic data based on the adopted mobility plan. Enter corresponding data in the appropriate traffic analysis zones (TAZs) of the travel demand model. This task is commonly performed by MPOs during the development of the MPO long range transportation plan.
 - Because there are uncertainties associated with long range planning, general land uses and estimated densities can be used as a starting point, particularly for developments with a planned buildout in excess of ten years. It is recommended that the highest trip generation rate be chosen for future development when no further information is available. This practice will accommodate a wide variety of possibilities and will produce a more robust analysis. For medium to short range developments more detailed land use information may be available.
 - It may be necessary to aggregate similar or compatible nearby future land uses in each planning area. Given the size of planning regions, a considerable number of modeling details may require simplification to keep the proposed methodology feasible. For this purpose, an aggregation step is completed to prepare the future land use data for input into the FSUTMS model. Similar or compatible land uses can be aggregated within subareas, for example all the shopping center, supermarket and specialty retail center trips in a subarea can be grouped together under one single major category such as commercial. This information can be aggregated geographically to facilitate the data input in the FSUTMS model.
2. Run the travel demand model for each projected aggregated land use, generate the network report, and validate the results.
3. Estimate the VMT growth for the county/region.

$$VMT_{Growth} = VMT_{Horizon\ Year} - VMT_{Base\ Year}$$

- Use the calculation utilities embedded in CUBE to obtain the link distribution percentages for each aggregated planned land use.
- Export the results to GIS or use the GIS and calculation utilities embedded in CUBE to compute VMT. The output of this step includes both total VMT in the county/region and VMT for each planning area. Future VMT for the county/region may also be calculated as the sum of the VMT that fall within each planning area.
- VMT Growth is equal to the difference between horizon year VMT and base year (existing) VMT.

APPENDIX C: CALCULATING EQUIVALENT REGIONS

To determine the ratio of the average distance from a planning area to the middle of urban center or activity center, the actual geometry of the region should be transformed into an equivalent region. This equivalent region consists of a series of concentric circles representing the different planning areas. This concept is illustrated through the example region with three major planning areas: urban center, urban reserve and rural reserve; but it can be extended to a region with additional planning areas.

The equivalent region determination starts by defining a prioritized list of planning areas. The areas where development is planned should be set first in the list. The last area in the list is such that developments occur at the slowest pace in the region. For illustration purposes, assume that the prioritized list consist of urban center, urban reserve, and rural reserve planning. A brief description of the acronyms used in the example is presented below:

- A_{UC} : Area of urban centers defined as the sum of the net areas of the different urban centers in the region
- A_{UR} : Area of urban reserves defined as the sum of the net areas of the different urban reserves in the region
- A_{RR} : Area of rural reserve areas defined as the sum of the net areas of the different rural reserves in the region

The equivalent areas must guarantee that each area in the list contains the previous one. The first area will not contain any other area and therefore it will be smallest. The following is a description on how to form the equivalent planning region for the example case:

- The first element in the list becomes the innermost circle, in this case the urban center. Its equivalent area is the sum of the net areas of the urban centers of the regions. $E_{UC}=A_{UC}$
- The second element in the list becomes the second concentric circle. This circle must be of an area such that contains the equivalent urban center (previous element in the list). In the example case, the equivalent urban reserve (E_{UR}) must contain the areas corresponding to the urban reserves (A_{UR}) and the equivalent urban center (E_{UC}). $E_{UR}=A_{UR}+E_{UC}$
- The last element in the list becomes the outermost circle and must contain all of the inner planning areas. In the example case, the equivalent rural reserve (E_R) must contain the rural reserves and the equivalent urban reserve, E_{UR} (which also contains the urban center). $E_{UR}=A_R+E_{UR}$

Once the equivalent region is obtained, the average distance from the urban center can be obtained by finding the radius of the circle whose area is equal to the area of the equivalent region of interest. This distance can be found by applying the following formula to the equivalent areas:

$$D = \sqrt{\left(\frac{\text{Area of equivalent planning area}}{\pi}\right)}$$

The suggested procedure is to obtain the average distance to the midpoint of the urban center D_{1r} , D_{2r} , and D_{3r} for the urban center, urban reserve, and rural areas, respectively. These distances can be obtained as follows:

$$D_1 = \sqrt{\left(\frac{\text{Equivalent area urban center, } E_{UC}}{\pi}\right)} \quad D_2 = \sqrt{\left(\frac{\text{Equivalent area urban reserve, } E_{UR}}{\pi}\right)}$$

$$D_3 = \sqrt{\left(\frac{\text{Equivalent area rural reserve, } E_R}{\pi}\right)}$$

For example, if $D_2 = 2 \times D_1$ and $D_3 = 3 \times D_1$, the distances D_{1r} , D_{2r} , and D_{3r} and their associated rates in each planning area can be presented as shown in Figure C1. This procedure can be applied even in cases in which there are planning areas scattered over a region. The average measure of distance is based on the desirability of development in terms of land use type and accessibility and not necessarily physical proximity to the urban center. This procedure can be modified to accommodate different cases and must be applied with caution, checking that the resulting tiered-rate structure is reasonable.

Once the equivalent planning region has been determined it can be treated as the original planning region for fee calculation purposes.

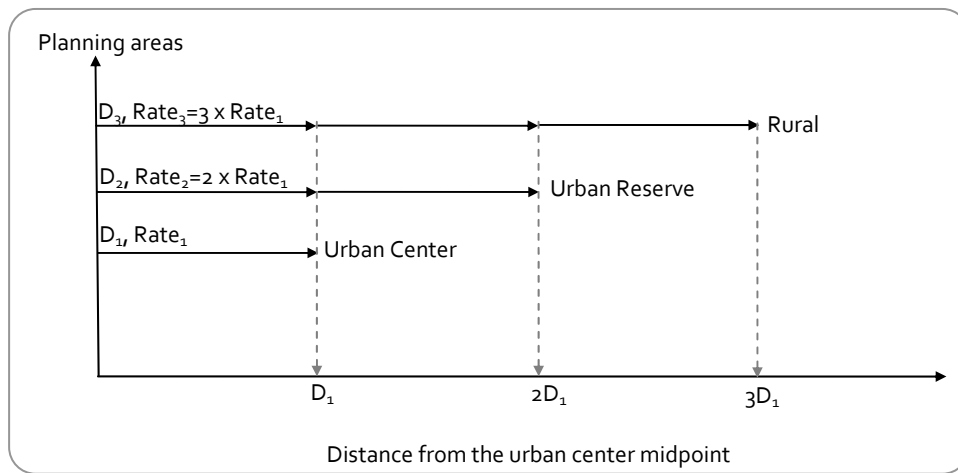


Figure C1: Distance from planning areas to the midpoint of the urban center