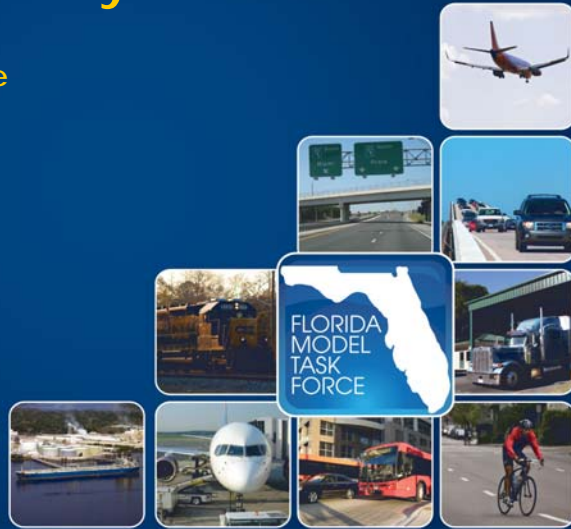


# Integrating FSUTMS & Land Use Forecasting Analysis Tools

*presented to*  
Land Use Subcommittee

*presented by*  
Gary Kramer and Wade White

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## Agenda

- Purpose of Evaluation
- Systems Evaluated
- Assessments
- Findings
- Recommendations




## Purpose of Evaluation

- Assess Land Use Model Platforms vs. Potential to Meet MTF Objectives
  - On-going FDOT Research Efforts
  - A Rule-Based Model
- Evaluate by “Real World Testing”
  - Documentation
  - Data Development Requirements
  - Ability to Integrate with a FSUTMS Model
  - Output Usability



## Systems Evaluated

Land Use Model Name	Current Development Status	Currently Ready for Full FSUTMS Integration
Interactive Growth Model, aka IGM	Web-based, proprietary	No due to web-based interactive nature of design.
Steve Rename	Stand Alone PC Compiled Program (C++)	Yes as it operates with ASCII files and on a local host machine.
LandSYS	Draft Stand Alone PC Compiled Program (MATLAB)	Not yet as User Interface is not fully developed and methods not fully tested.
CommunityVIZ	Proprietary ArcGIS Extension	Not yet due to interactive nature of software design and lack of a fully exposed API.



## Assessments



- IGM
  - Dropped Due to Web-based Design, Proprietary and Lack of Documentation
- Steve Rename
  - Tested Using Current Statewide Model
- LandSYS
  - Tested Using Developer Datasets (Orange County)
- CommunityVIZ
  - Tested Using Hillsborough County Parcel Data



## Steve Rename



- Pros
  - Quick and easy to run
  - Stand-alone application
  - “Real World” implementation with statewide model
- Cons
  - Limited documentation
  - No diagnostic reporting



## LandSYS



- Pros
  - Small-scale geography
  - Estimated based on Local Data
  - Incomplete design due to lack of data
- Cons
  - No “Real World” application
  - Partially developed User Interface (UI)
  - Limited documentation
  - No diagnostic reporting




## CommunityVIZ




- Pros
  - Full ArcGIS Extension
  - Full documentation
  - Fully developed interactive user interface
- Cons
  - No way at present to automate execution
  - Data structures would be challenging for anything the size of a regional model or larger




## Findings




MTF Recommendation / Goal	Steve Rename	LANDSYS	CommunityVIZ
Full FSUTMS Integration Potential	Yes	Yes	No
Sound Theoretical Framework	Yes	Yes	No
Policy Adherence			
Transport- Auto/Road	Yes	Yes	Yes
Transport-Transit	No	No	No
Transport- Freight	No	No	No
Land Use- Households	Yes	Yes	No
Land Use- Economic Development	No	No	No
Land Use- Job Locations	Yes	Yes	Yes
Impact Assessment	Yes	Yes	Yes
Ease of Use	Yes	Incomplete	Yes
GIS Integration	Incomplete	Incomplete	Yes
Adaptability of Methodologies	No	No	Yes
Comprehensibility			
Zonal Data	Yes	Yes	No
Other Inputs/Outputs	No	No	Yes
Good Error Reporting/Diagnostics	No	No	No
Ability to Communicate Results to Public	No	No	Yes
Ability to Compare Alternatives	No	No	Yes
3-D Animation	No	No	No
Formal Software Developer Support	No	No	Yes
Documentation Available	Incomplete	Incomplete	Yes
Data Reliance from Public Sources	Yes	Yes	Yes
Reasonable Run Times	Yes	Yes	Yes
Purchase Price	Free	Free	Low
Maintenance Cost	TBD	TBD	Low
Implementation Readiness	Yes	No	Yes



## Findings



- Steve Rename and LandSYS have been developed and sponsored by FDOT and as such, FDOT owns rights to the intellectual property
- The two operate at differing levels of geography (zones for Steve Rename and parcels/grid cells for LandSYS) offering planning partners a choice to meet whichever level they are most comfortable operating
- Both can be used as stand-alone applications, in a full FSUTMS feedback design, or interactively. This will allow easy migration of these models from the PC to “the cloud”.



## Recommendations



- Continue FDOT Research & Development Efforts on Steve Rename and LandSYS with a Focus on “Critical Path” to Usability:
  - **Documentation**- both models will need to have their technical specifications and data requirements fully documented.
  - **User Interface**- Both models require additional development efforts on their user interface. Steve Rename uses a control file that is not editable in the user interface and LandSYS does not have a fully functional interface.
  - **Diagnostic Reporting**- Neither model produces diagnostic reports necessary for model verification, validation, calibration or debugging.
  - **“Run” Reporting**- Neither model produces user-friendly reports that describe how the model runs, what parameters were used, and summaries of inputs and outputs.
  - **Standardized Data Structures**- Both models require significant user effort preparing input data. Given the disparity of data availability and quality around the state, coming up with useful standardized pre and post-processors will significantly reduce model development time and effort.

