



# The Next Generation of the Michigan Geographic Framework

June 5, 2017

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# Outline

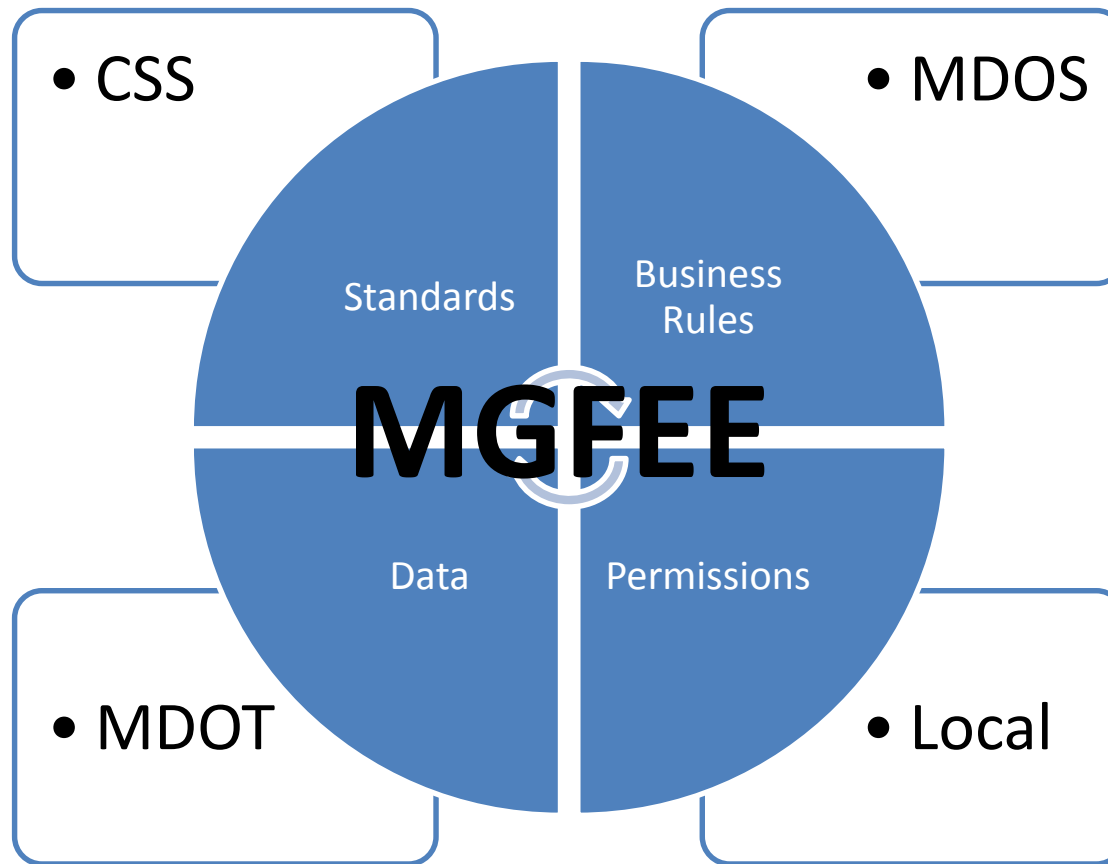
- MGF background
- System today
- Requirements
- What to expect

# MGF Background

- MGF began in the 1990s
  - Produced 16 annual versions to date
  - Framework modeled after national Framework concepts
  - Modeled using Census Tiger topological model
  - Initially used ArcInfo Coverage Data Format
  - Integrated boundary geography, roads, hydrology, rail
  - Integrated Linear Referencing System for all roads
  - Annual versions are made publicly available
  - Seen by federal agencies and other states as a model integrated state framework

# Components of Today's MGF

## Michigan Geographic Framework Editing Environment (MGFEE)



# Reasons for Change

- MGFE system is end of life
  - Older programming technology
  - No longer being supported through new version releases
  - Delivery generation tools use old technology and data formats
- Develop new federated model using distributed architecture
- Data stewards use their own editing tools to manage their authoritative data then provide changes back to MGF GIS repository
  - E.G. MDOT implementing ESRI Roads and Highways
    - 35+ DOTs implementing ESRI Roads and Highways for LRS
    - MDOT managing other business data via ESRI Roads and Highways
- Leverage Server Oriented Architecture to provide access to MGF data more frequently

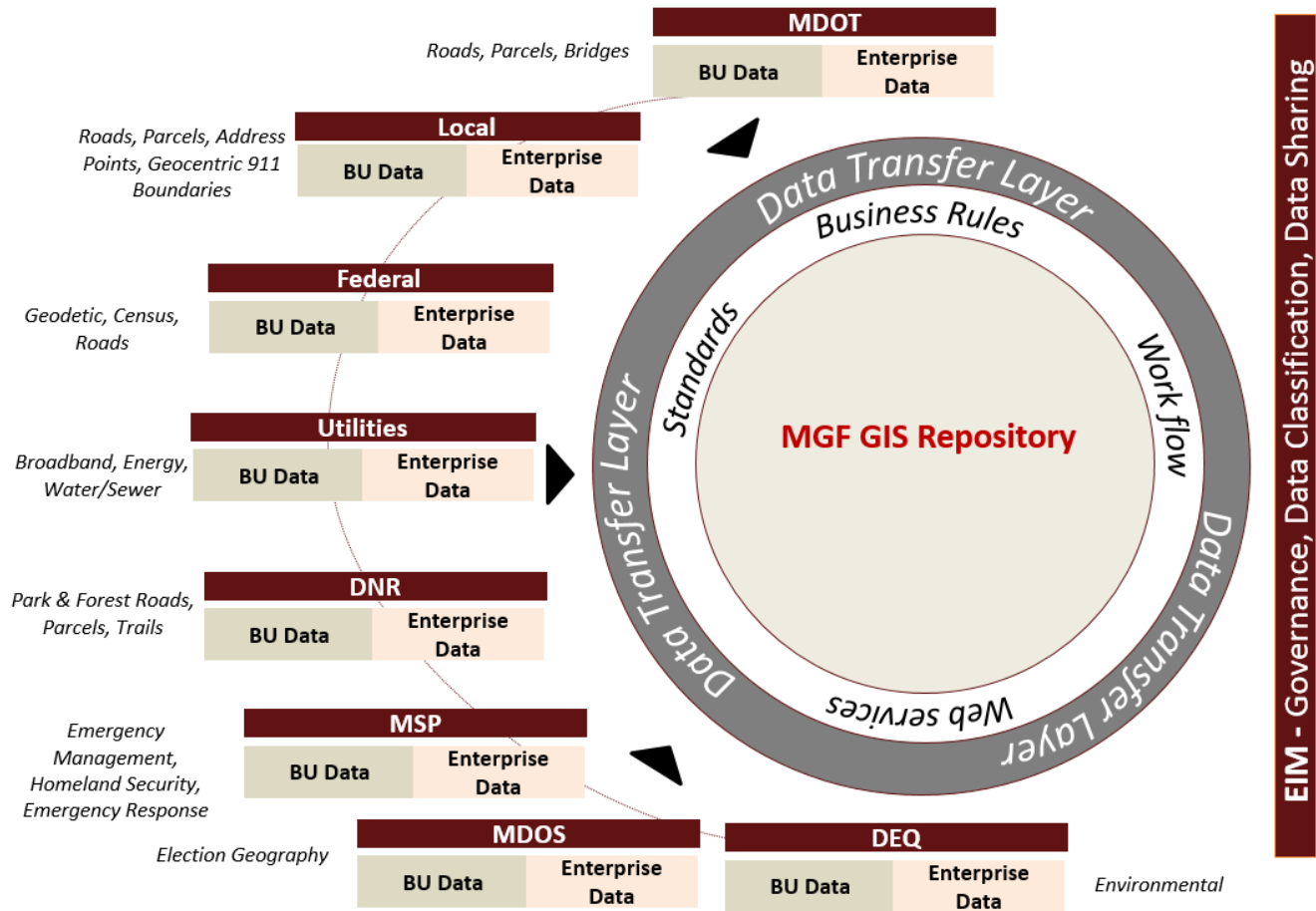
# Key Requirements

- Business Rule Engine
  - Validation of topology across geodatabases
  - Detect change in geometry and attributes
  - Validate attribute requirements
  - Business rules can be executed from multiple editing platforms
- Workflow Management
  - Notify data stewards of edits that could affect their data
  - Notify approvers of needed review
  - Flag standardization errors – route back to data steward
  - Track data validation and approvals through process to publication

# Key Requirements

- Integration with LRS from ESRI Roads and Highways
- Integration of elevation into new data model
- Track changes across time
- Integrate National Emergency Number Association standards and National Hydrology Data standards/models into new data model
- Manage data classifications and permissions at a layer, geographic area or attribute level
- New data model needs to incorporate future geocoding and routing services

# MGF Federated System

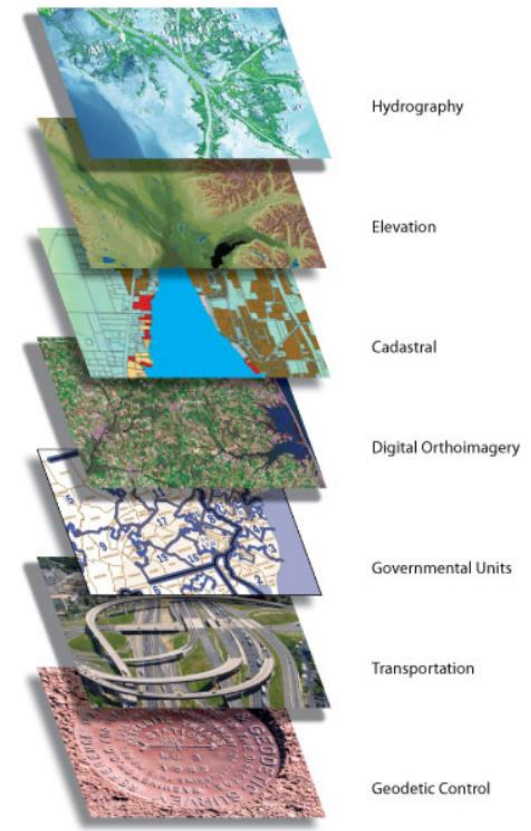




# National Spatial Data Infrastructure

- MGF Modeled on National Spatial Data Infrastructure (NSDI) framework
- NSDI 7 key data themes
- Addresses added as 8<sup>th</sup> in 2016
- National Address Database
- National State Geographic Information Council – Local-State-Federal Authoritative Data Flow
- Michigan has opportunity to lead

FGDC.GOV  
FEDERAL GEOGRAPHIC DATA COMMITTEE



# NSGIC GIS Maturity Assessment

- 17) Indicate the level of completion of the Parcel data layer as a percentage.
- 18) Respond to the following statements about your statewide Parcel database. If you indicated that you plan to develop this data layer in the next 24 months, please...
- 19) Indicate the level of completion of the Orthoimagery data layer as a percentage.
- 20) Respond to the following statements about your statewide Orthoimagery Data. If you indicated that you plan to develop this data layer in the next 24 months, please...
- 21) Indicate the level of completion of the Road Centerline data layer as a percentage.
- 22) Respond to the following statements about your Statewide Road Centerline Database. If you indicated that you plan to develop this data layer in the next 24 months, please...
- 23) Indicate the level of completion of the Address Point data layer as a percentage.
- 24) Respond to the following statements about your Statewide Address Point Database. If you indicated that you plan to develop this data layer in the next 24 months, please...
- 25) Indicate the level of completion of the Governmental Boundaries data layer as a percentage.
- 26) Respond to the following statements about your Statewide Governmental Boundaries Database. If you indicated that you plan to develop this data layer in the next 24 months, please...
- 27) Indicate the level of completion of the Hydrography data layer as a percentage.
- 28) Respond to the following statements about your Statewide Hydrography Database. If you indicated that you plan to develop this data layer in the next 24 months, please...
- 29) Indicate the level of completion of the Elevation data layer as a percentage.
- 30) Respond to the following statements about your Statewide Elevation Database. If you indicated that you plan to develop this data layer in the next 24 months, please...
- 31) Indicate the level of completion of the Geodetic Control data layer as a percentage.
- 32) Respond to the following statements about your Statewide Geodetic Control Database. If you indicated that you plan to develop this data layer in the next 24 months, please...
- 33) Indicate the level of completion of the Buildings and Structures data layer as a percentage.
- 34) Respond to the following statements about your Statewide Buildings and Structures Database. If you indicated that you plan to develop this data layer in the next 24 months, please...

# National NSDI Report Card

the end of the process was the public release of the Report Card on February 6<sup>th</sup> 2015

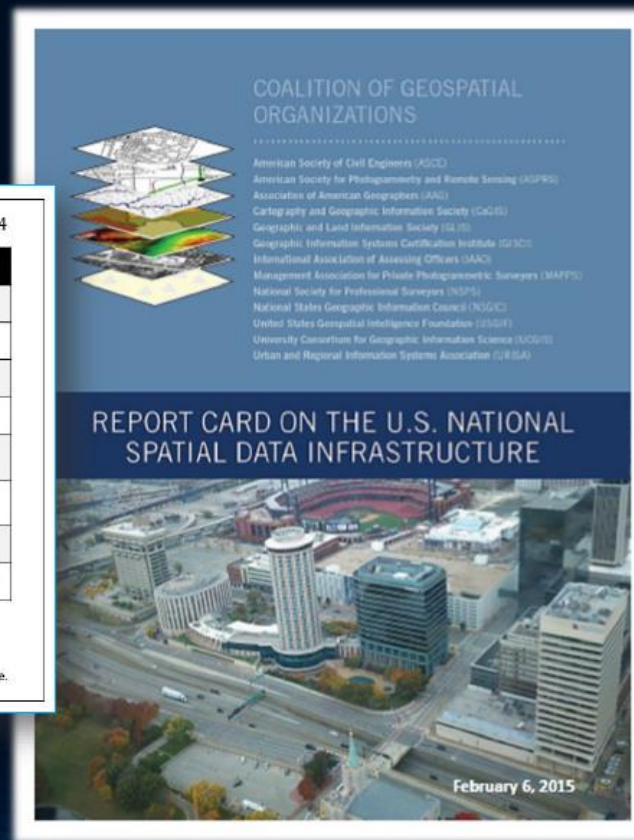


**GRADE REPORT OF:** National Spatial Data Infrastructure (NSDI)      **SEMESTER:** Fall 2014

| Subject               | Dept.      | Grade | Subject                 | Dept.   | Grade |
|-----------------------|------------|-------|-------------------------|---------|-------|
| CADASTRAL DATA        | DOI        | D+    | CAPACITY                | FGDC    | C     |
| GEODETTIC CONTROL     | DOC        | B+    | CONDITION               | FGDC    | D     |
| ELEVATION DATA        | DOI        | C+    | FUNDING                 | Various | D     |
| HYDROGRAPHY DATA      | DOI        | C     | FUTURE NEED             | FGDC    | D     |
| ORTHOIMAGERY DATA     | DOI & USDA | C+    | OPERATION & MAINTENANCE | FGDC    | C     |
| GOVERNMENT UNITS DATA | DOC        | C     | PUBLIC USE              | FGDC    | C     |
| TRANSPORTATION DATA   | DOT        | D     | RESILIENCE              | FGDC    | C     |
| OVERALL DATA GRADE    |            | C     | COMPREHENSIVE GRADE     |         | C~    |

**TO:** Federal Geographic Data Committee  
590 National Center  
Reston, Virginia 20192

**FROM:** Coalition of Geospatial Organizations (COGO)  
<http://www.cogo.gov>  
See the full report for an explanation of each grade.



# National NSDI Report Card

## ✎ Grading Criteria

- **A = FIT FOR THE FUTURE** The data theme is generally in excellent condition and meets the needs for the present and the future.
- **B = ADEQUATE FOR NOW** The data theme is in good to excellent condition, but some geographic areas of the nation require attention for significant deficiencies.
- **C = REQUIRES ATTENTION** The data theme is in fair to good condition, but it requires attention for many geographic areas of the nation.
- **D = AT RISK** The data theme is in poor to fair condition and mostly below the goals envisioned for the NSDI.
- **F = UNFIT FOR PURPOSE** The data for this theme is in an unacceptable condition and provides little to no value to users.

# What to expect

- Version 17 to be delivered in current MGF format
- Version 18 will be a transitional delivery, LRS will be produced from ESRI Roads and Highways
- Anticipate some changes to current deliverables
  - No .e00 export
  - Files as shapefiles or feature classes
  - Some fields that are no longer used may be removed
- Migration table is planned to be produced from ESRI Roads and Highways
- More outreach and communication as project begins

# Today and Tomorrow

| MGF Today                                    | MGF Next  |
|--|---|
| One editing environment                      | Distributed editing   |
| Annual versions                              | More frequent versions  |
| Cannot load bulk features                    | Can integrate bulk uploads  |
| Data products are produced as exported files | Service oriented architecture – connect to a service to get updates   |
| Highly customized                            | More COTS than customized (expected)  |
| MGF data layers publicly available           | Geospatial repository to manage publication version of data based on data classification, open and internal |

# Questions

## Questions

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