One Campus Map

Technical Study

February 2021

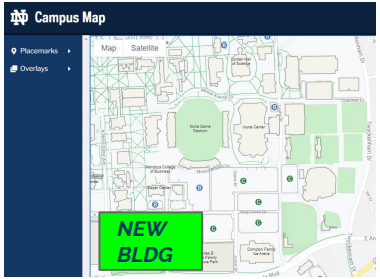
Overview

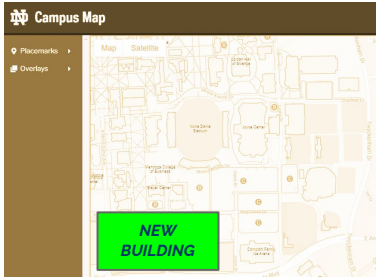
The Business Problem

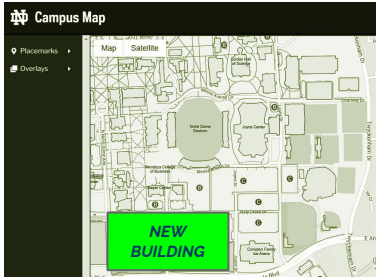
We have a lot of campus maps but they are not currently “synced” in terms of data updates.

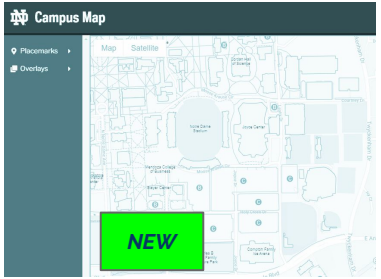
As an example, new buildings have to get added to each map separately but the timing of each update and specifics of the data (building shape, GSF, etc.) may vary as a result.

Bottom line: New buildings and data should appear on all maps at roughly the same time and be the same on each map.



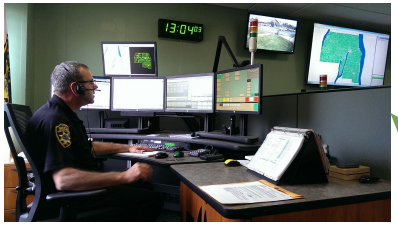




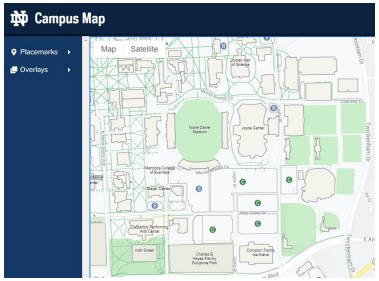


“One Campus Map” Project

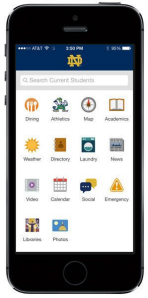
dataND



Campus Safety: Dispatch System



MarComm: Online & Print Maps



ND Mobile

Utilities: GIS Maps & Records

ArcGIS
ESRI

Enterprise GIS
Geo-Database & Maps

UFI will coordinate the technology & process integrations required to ensure that there is a single source of truth for campus geospatial data.

In the short term, this is about ensuring a “sync” between all the existing maps on various public and internal platforms.

The first major step in this process is the publication of a technical plan, *created in collaboration with key stakeholders, that lays out all the systems and connections and envisions a roadmap for the progress of various integrations.*

Technical Plan

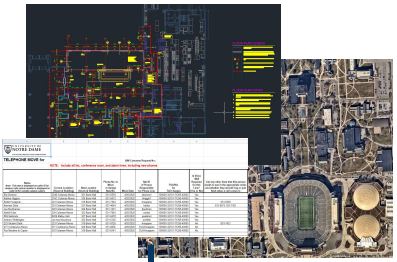
Goals

- Facilitate the development, distribution, and use of geospatial data and technology for administrative operations.

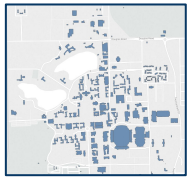
- Establish an authoritative data source that is trusted, accessible, current, and secure.

Enterprise GIS System Overview

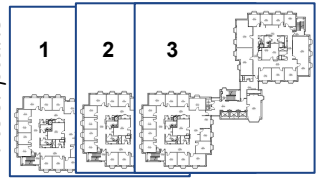
Geospatial data updated by UFI as projects wrap up



Campus map



Building X Floor plans



UNIVERSITY FACILITIES INFORMATION

ArcGIS ESRI

GEO-DATABASE

Updated location data fed to their systems; time spent on value-added analysis only

dataND → ***DataND users***

InVision seeplanmanageprotect → ***Dept-level users***

ArcGIS Online → ***Dept-level users***

API → ***Dept-level users***

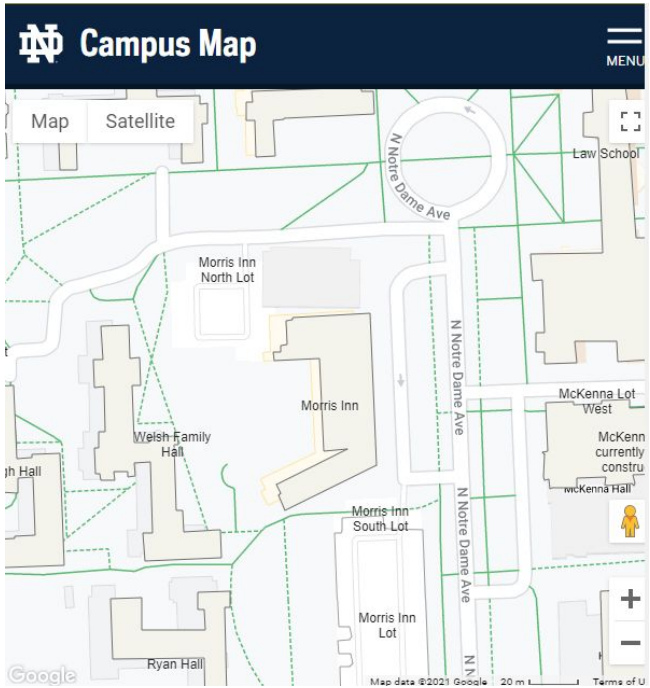
X → ***Dept-level users***

Data updates

Enterprise GIS platform

Function-specific applications

map.nd.edu

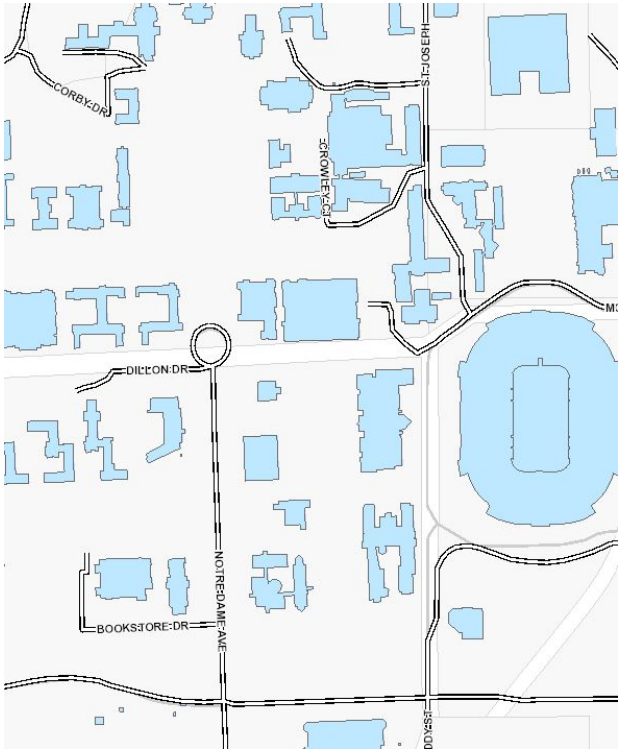


Managed By: MarComm	Contact: Erik Runyon
Current Workflow	**Proposed Workflow**
Erik uses Ruby on Rails and updates file using xy nodes from the kml sent to him by Jim Pfeil. An algorithm is used to generalize the outline to speed drawing performance. Uses a Google basemap that is free until it exceeds a certain number of views.	Phase I: Continue to provide updates by kml when building footprint changes. Post release notes on Portal feature service page describing changes made to layer. Future Phase: investigate replacing Google with custom basemap or moving map to ArcGIS Online

ND Mobile App

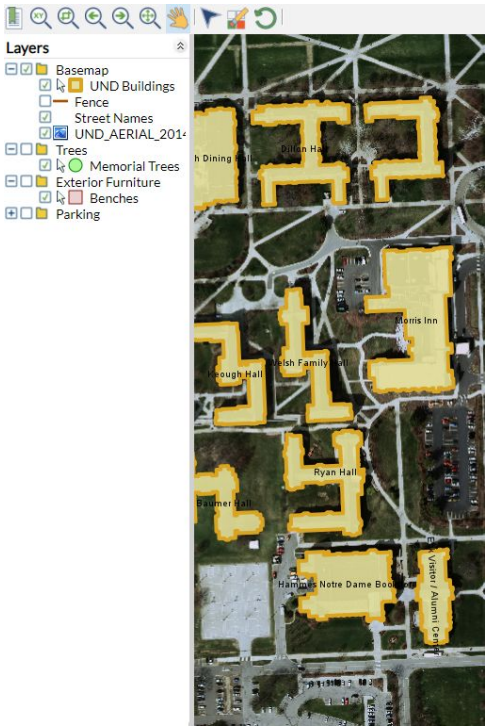
Managed By: OIT	Contact: Marty Klubeck
Current Workflow	**Proposed Workflow**
Jim Pfeil sends a kml via email when a building footprint is updated. Marty takes the building he needs and edits his kml and adds description text. Uses a Google basemap that is free until it exceeds a certain number of views.	Phase I: Continue to provide updates by kml when building footprint changes. Post release notes on Portal feature service page describing changes made to layer. Future Phase: investigate replacing Google with custom basemap or moving map to ArcGIS Online

Campus Safety



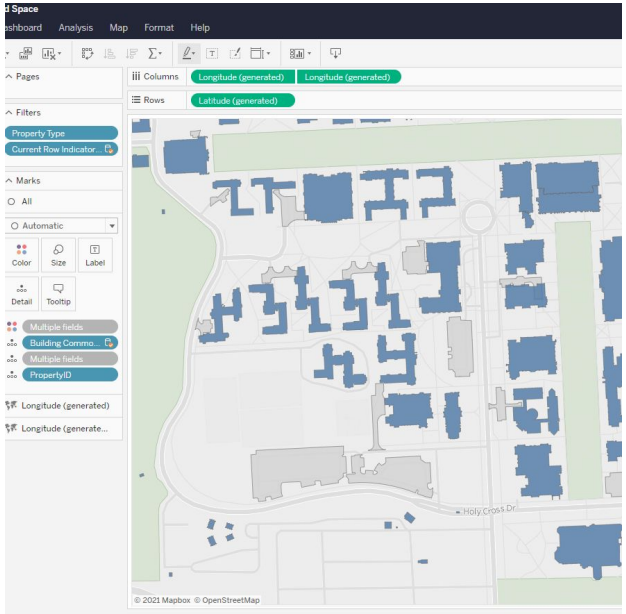
Managed By: Campus Safety St. Joseph County	Contact: Dennis Park, Campus Safety John Carlson, SJC
Current Workflow	**Proposed Workflow**
Jim Pfeil sends a shp via email to Dennis when a building footprint is updated. Dennis incorporates into his staging database and creates an address. Sends to John County gets an update of all building footprints every two years.	Phase I: Dennis can export shp from ArcGIS Portal of all buildings. Will still need to send an email of what's been updated. Release notes to be posted on Portal feature service page. Dennis incorporates changes into his staging db and sends back to John for John to update his dataset.

Campus Basemap



Managed By: FDO	Contact: Jim Pfeil
Current Workflow	**Proposed Workflow**
Jim makes updates in CAD to Campus Maps drawings and simultaneously makes updates in Munsys to load into an Oracle spatial db. This feeds into the Enlighten map. The Oracle db uses WGS84. Campus Map drawings are in State Plane.	Phase I: Publish building footprints and parking lots to ArcGIS Portal and email user group when there are changes. Need to figure out conversion from Oracle to geodatabase, publish as hosted feature layer services & with kml enabled. This is always accessible and shows the date last published. Update feature service page with release notes. Establish form email to user list. Phase II: Convert all basemap data available from “edges” polylines into polygons utilizing student workers. May need to establish development database in State Plane for versioned editing and script export to Production db in WGS84. With help from OIT, determine requirements for Enlighten and ArcGIS to share data using ogc web services. If not possible, create nightly script to convert between formats.

DataND



Managed By: DataND	**Contact: Joel Dosmann**
Current Workflow	**Proposed Workflow**
Some spatial datasets are integrated with authoritative datasets such as AiM and Banner. Invision is integrated with both. Oracle db is integrated with AiM for building data. Building list is published to DataND.	Publish link to gis.nd.edu on dataND Buildings Report description page. Share info in dataND newsletter. Document source of truth so that if the source of truth for building data becomes geodatabase (instead of AiM), publish that to dataND. Find out requirements of sharing web feature service of footprints for users to consume in maps.

Implementation Timeline

Update buildings layer in various maps so they are all up to date

Point dataND buildings layer to feature service url, if possible

Establish automated process for Enlighten and ArcGIS to work together

Publish custom basemaps in Portal for campus users

Publish master feature layers to Portal for users and map managers to download. (Buildings & Parking Lots)

Convert roads, sidewalks, and landscapes to polygons

Continue to develop layers such as pavement markings and annotation

Cultivate other data layers as available, such as trees and benches, to incorporate into master maps. Work with OIT to integrate with other systems of record.

UFI to host public facing basemap layers and/or maps