

GEOSPATIAL COMMONS RESOURCE CHANGES: COMMUNICATIONS GUIDANCE

This document provides **guidance**, not requirements, for notifying users of changes to resources in the [Minnesota Geospatial Commons](#). It is linked from the Commons [Publisher Help](#). It was written by Minnesota IT Services staff, but the intended audience is all publishers on the Geospatial Commons. For more information, [contact MnGeo](#).

Overview

Impact of Change	Suggested Lead Time	Audience	Notes
Low	None	Local Staff, GDRS Node Admins ¹	Providing notifications as a courtesy is a good practice
Medium	One Week	GDRS Node Admins	Node Admins can determine wider impact and communicate
High	One Month	GIS Community ²	Publisher has a responsibility to notify the community

Examples of Changes and Their Impacts

The table below provides a quick reference on changes and their impacts. Truly understanding the impacts of a change requires a deeper understanding of the resource and its user base.

¹ A list of GDRS Node Admins is available [from MnGeo](#) or members of the Commons Operations Team.

² [MnGeo’s GovDelivery newsletter](#) and the “News” section of the Commons are available for this purpose.

Impact	Examples
Low	<ul style="list-style-type: none"> • Basic record and metadata maintenance • Changing text formats such as proper case to lower case • Adding a column to the schema
Medium	<ul style="list-style-type: none"> • Changing the name of a resource (with versioning) • Breaking schema change (with versioning) • Changing domain values for a column that is important to symbolization, definition queries, or classification • Low impact changes on a foundational resource
High	<ul style="list-style-type: none"> • Changing the name of a resource (without versioning) • Breaking schema change (without versioning) • Medium impact changes on a foundational resource

Introduction

The backbone of the Commons is the Geospatial Data Resource Site (GDRS), a node-based system of files that replicate one another based on authoritative publisher roles. One of the advantages of a file-based system of sharing is the ability of desktop GIS clients (ArcGIS, QGIS, etc.) to use files (shapefiles, geodatabases, geopackages, etc.) from a local Network Attached Storage (NAS) device, or a replica on a hard drive. For field work or locations with limited internet access, the portability of this file-based access is crucial. Since many of the published resources could be considered “reporting data”, it also serves as an adequate decoupling from maintenance-level enterprise databases.

Of course, much like “service-level data”, file-based published resources are living, breathing “reports”, and therefore need to change based on user or publisher needs. When a resource changes, the desktop clients – or databases connected via ETL routines – need to change as well. Therefore, without adequate notice, a change in a resource can prove extremely disruptive to users. Many resources on the Commons include “services” paired with the file-based data. These services are often used within web mapping applications and are sometimes used by the general public. Thus, changes to services can be even more disruptive.

This document guides publishers in assessing the impact level of various changes, and once that impact level is determined, execute communications that are suitable to the impact. As with any guidance, the recommendations within are not foolproof and do not guarantee elimination of disruption. Following the advice herein merely mitigates disruption by encouraging communications amongst publishers and the wider Minnesota GIS community.

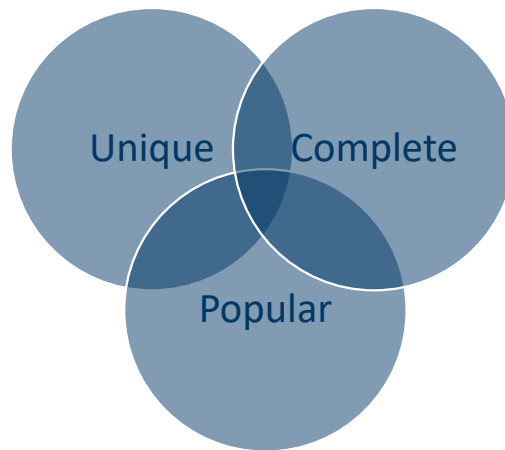
Finally, this information is not being proposed as a standard set of requirements or expectations. They are guidelines for publishers, who ultimately must balance the needs of the community with the requirements of

the users within their own organization. Very few resources get published and maintained without an internal business driver within an organization. Therefore, providing notice to the broader community is secondary to meeting those internal needs and timelines of the publisher’s organization.

Foundational Data Resources

When assessing the impact of a change to a resource, one of the key questions is whether the resource could be considered “foundational”. There is no black and white definition of this concept. Instead, publishers should ask themselves if their resource meets at least one of the following tests:

1. Is it **unique** within its category? Central to the Commons is the organization of resources within [ISO categories](#), and Minnesota has long identified eight themes central to a [Minnesota Spatial Data Infrastructure](#): Cadastral, Elevation, Geodetic Control, Government Boundaries, Hydrography, Imagery, Soils, and Transportation. If the resource not only fits one of these themes, but is *unique* on the Commons within that theme, it can be considered foundational.
2. Is it **complete** from a perspective of consistent statewide coverage, regular updates, and adequate documentation? No data resource is perfect. But a resource that meets these requirements is more likely to be used – and therefore be considered foundational. Even if a resource is not statewide but covers multiple counties, it is more likely to be foundational than a resource that covers just one county. For example, the MetroGIS seven-county [parcel dataset](#) that is updated quarterly is more likely to be foundational than Ramsey County’s [parcel dataset](#). However, the latter is likely foundational to local government entities entirely within the county – so broadcasting changes to that audience will be important.
3. Is it **popular**? Resources that are frequently downloaded or used within multiple web applications are more likely to be foundational. How can this be measured? Each year the Commons publishes the 25 most popular resource pages to be visited within a [Commons Metrics resource](#). Specific statistics about a publisher’s resources can be provided on request to MnGeo. Web services often have methods for measuring usage. The more the resource gets used, the higher the impact when it changes.



If a publisher’s resource meets one of these criteria, it is likely foundational. If it meets two or more, it is almost certainly foundational. In these cases, publishers should strongly consider increasing the suggested lead time in advance of implementing changes, and issue multiple announcements in order to reach as broad an audience as possible. A change that might be considered “low” impact on non-foundational resources could be considered “medium” or “high” impact on foundational resources.

Low Impacts

Many changes to GDRS resources have a very low impact. For example, rows (records) within your data may be frequently changing, because the information is changing. Perhaps you are adding records to a resource that describes environmental observations or are deleting records that are no longer current from an asset inventory. Perhaps you are fixing typos within records or within the metadata. Under these situations, publishers are generally not expected to provide notifications since users expect current and well-documented data within the GDRS.

Some modifications have little *immediate* impact on users but lend themselves to more notification. For example, adding a column to a resource will infrequently result in code breakage, but users may find significant uses for that column if they are made aware of it. When evaluating a change, publishers should ask themselves: will this change break code? If the answer is “No”, the impact is likely low. But if a non-breaking change could be useful to users, publishers should consider notification, even after the change is implemented, as a courtesy.

For recommended notification lead time and the audience to which you should direct your messaging, see the table in the Overview section.

Medium Impacts

A medium impact on a resource might be a breaking change for some uses, and not breaking for others. It might be a change that is relatively easy for users to recover from after a breakage occurs. An example might be changing the base URL of a data service; with notice, users can usually update their mapping applications with the new reference relatively easily.

Another example might be changing the name of a feature class within a resource. If the schema and fundamental data structures remain the same, this change can be relatively easy for users to implement when they have notice, especially if the publisher takes the time to ensure that the layer file(s) delivered with the resource are updated to reference the new feature class.

(For foundational resources, this change would be considered a “high” impact. A best practice in this case would be to **add** the newly named feature class and allow time for changes before **deleting** the feature class that is being superseded. This can be considered a form of “versioning” that frequently assists users in trusting your resources.)

For non-foundational resources, a field schema change can have low or medium impacts, especially if the publisher applies some sort of versioning to the schema, which can be accomplished by first adding columns that meet new requirements for a period of time before removing columns that no longer meet needs.

For recommended notification lead time and the audience to which you should direct your messaging, see the table in the Overview section.

High Impacts

A high impact change on a resource is something that is likely to break code references, desktop project labeling/symbolization/query definitions, or a combination of multiple “medium” impact changes. This can include changing a column name/type, deleting one or more columns, or otherwise making fundamental changes to the data structures. This is common when a publisher determines that a resource needs a fundamental reorganization in order to best meet the needs of users. But while a change like this can be beneficial in the long run, it can be disruptive in the short run.

In these cases, in addition to longer lead times and wider notifications, a best practice is to implement some sort of versioning: adding the newly configured resource and issuing notices of deprecation of the old resource before deleting it. There is no standard way for publishers to version data resources, but there are a number of options:

1. Create an entirely new resource (with a different base name) with the newly configured data before deprecating and retiring the old resource.
2. Add versioning elements to feature classes, either date-based (ie “<featurename>_yyyy”) or release-based (“<featurename>_vx.x”).
3. Inform users that the “current” (aka non-versioned) reference will be frequently changing, but allow them to reference a “stable” version if they choose.

There will be cases where versioning doesn’t make sense or is only implemented in a crude manner. In these cases, as long as enough lead time on the notice is provided, and to a wide audience, the impacts can be mitigated.

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Conclusion

Users of the GDRS (and as a result, the Geospatial Commons) expect well-documented, current, and useful data and application resources. They have high expectations of publishers to produce and maintain this content, along with the associated documentation. Publishers have a responsibility to notify users of changes, especially foundational resources. There are a lot of judgment calls in shouldering that responsibility, and of course it needs to be balanced with the requirements of the users within the publisher’s organization. When in doubt, issue more communications than you think are necessary. Users can’t be forced to read change notifications, but the ones who take the time to do so will be thankful that you provided them.