



## Memorandum



*To: IDOT*

*From: CDM Smith*

*Date: September 13, 2024*

*Subject: IDOT Data Needs*

This memorandum evaluates the current and future data needs of the Illinois Department of Transportation (IDOT). IDOT's data are a robust resource. IDOT collects, manages, and uses a wide array of data across many topics. Its directly collected and acquired datasets serve as a foundation for real-time information sharing, state and local planning activities, and transportation system investment and programming decisions, both within the Department and for public and private stakeholders across the state.

### Overview of current IDOT data

This memorandum focuses on data that inform IDOT's real-time monitoring, planning, and programming activities. Within those categories, IDOT collects, receives, acquires, and uses data from many sources and providers. This section provides an overview of the types and sources of data.

### Data types, sources, and collection practices

IDOT data span many categories, including transportation system usage, real-time travel information, transportation system characteristics, asset condition, safety, law enforcement activities, system investments, and agency administrative data. The sub-sections below catalog data collected by or held by IDOT, categorized by data collection approach and topic. These examples are not exhaustive. For a tabular summary of IDOT data sources, see **Appendix A**.

#### *Direct data collection*

IDOT collects some data about the transportation system directly using its own staff and resources, including the following:

- **System usage.** Through activities like the Illinois Traffic Monitoring Program, IDOT gathers data on average annual daily traffic and annual vehicle miles traveled on roadway facilities throughout the state.<sup>1</sup>

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<sup>1</sup> <https://idot.illinois.gov/transportation-system/network-overview/highway-system/reports/illinois-travel-statistics.html>

- **Real-time travel conditions.** IDOT maintains a network of traffic cameras<sup>2</sup> and weather monitoring stations<sup>3</sup> throughout the state. During winter months, IDOT snowplow drivers also report road conditions related to snow and ice.<sup>4</sup>
- **Asset condition.** IDOT staff and consultants conduct regular inspections of asset conditions on IDOT facilities throughout the state, including roads, bridges, airport runways, and more.<sup>5</sup> IDOT staff also collect information on the asset condition of certain non-IDOT facilities, such as NHS roadways that have a functional class of 1 through 6.<sup>6</sup>
- **Asset ownership.** IDOT compiles data on the ownership of important assets, including transportation facilities, rights of way, and other parcels that may be required for ongoing or future IDOT system investments.
- **System rules.** IDOT codifies and shares data on important system rules, e.g., truck route designations on state routes.<sup>7</sup>
- **System characteristics and investments.** Through its regular capital investment and maintenance activities, IDOT generates and tracks data on project status and both temporary and permanent changes to system assets (e.g., lane closures, new facilities, capacity changes).<sup>8</sup>
- **Stakeholder and public input.** IDOT regularly conducts surveys as part of its planning processes, e.g., the Long-Range Transportation Plan, to serve as inputs to IDOT planning efforts.<sup>9</sup>
- **Agency operations.** IDOT also generates administrative and operational data related to internal agency operations (e.g., budgeting, human resources).

#### *Compiling data provided by other government agencies*

IDOT compiles data provided by local government agencies and other agency partners into statewide databases, under the terms of various data use agreements. Examples including the following:

- **Safety and law enforcement.** IDOT collects information from law enforcement agencies related to crashes, injuries, and fatalities on the transportation system. The Bureau of Data Collections processes and makes that data available internally and to external stakeholders, as needed. IDOT also collects and compiles other information related to law enforcement activities (e.g., traffic stops).<sup>10</sup>

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<sup>2</sup> [https://hub.arcgis.com/datasets/8a885da23dfb46caaa1827ad920fb5b1\\_0/about](https://hub.arcgis.com/datasets/8a885da23dfb46caaa1827ad920fb5b1_0/about)

<sup>3</sup> <https://idot.illinois.gov/news/remote-weather-stations-see-maintenance-and-innovation.html>

<sup>4</sup> <https://idot.illinois.gov/news/press-release.24148.html>

<sup>5</sup> <https://idot.illinois.gov/transportation-system/transportation-management/planning/transportation-asset-management-plan/performance.html>

<sup>6</sup> Source: IDOT staff.

<sup>7</sup> [https://data.illinois.gov/dataset/359idot\\_designated\\_truck\\_route\\_list](https://data.illinois.gov/dataset/359idot_designated_truck_route_list)

<sup>8</sup> For example, road construction conditions are captured on this map:

<https://www.gettingaroundillinois.com/RoadConstruction/index.html>

<sup>9</sup> <https://idot.illinois.gov/transportation-system/transportation-management/planning/long-range-transportation-plan.html>

<sup>10</sup> <https://idot.illinois.gov/transportation-system/local-transportation-partners/law-enforcement/reporting.html>

- **Non-IDOT system characteristics.** IDOT collects information from local agencies about the current state of transportation systems (e.g., local roadways,<sup>11</sup> bike facilities,<sup>12</sup> and transit GTFS data<sup>13</sup>). IDOT also collects and compiles data on project status and both temporary and permanent changes to system assets (e.g., lane closures, new facilities, capacity changes).<sup>14</sup>
- **Non-IDOT system asset conditions.** IDOT collects and compiles information on the condition of non-IDOT transportation system assets.<sup>15</sup> IDOT also leverages information gathered by other state agencies with roles in the transportation system, such as the Illinois Secretary of State's data on vehicle registrations.<sup>16</sup>
- **Revenues for the transportation system.** IDOT compiles data from related to transportation system revenues from partner agencies, including the Illinois Secretary of State and the Illinois Department of Revenue. IDOT receives and processes data on fuel consumption and tax receipts, vehicle registrations and fee receipts, transportation-related sales tax receipts, and projections of federal revenues for transportation.

#### *Acquiring data from outside organizations*

IDOT acquires data from outside organizations such as academic institutions and private data providers, including the following:

- **System usage and real-time travel conditions.** IDOT subscribes to the *Regional Integrated Transportation Information System (RITIS)*. RITIS compiles and provides comprehensive data on current and historical transportation system usage and conditions. Some of that data is provided by IDOT for ingestion into the RITIS platform, such as IDOT's traffic sensor data. However, IDOT also purchases other data sources offered by RITIS, including INRIX data and NPMRDS data for non-NHS facilities.<sup>17</sup>
- **Modeling and planning inputs.** IDOT subscribes to *Replica*, a private service that leverages many data sources (e.g., location-based services data from personal mobile devices and vehicle GPS systems) to provide additional estimates on transportation system usage (e.g., mode choice, origins and destinations, and demographics) that can inform system planning and programming.<sup>18</sup> IDOT also relies on other large-scale and innovative data sources to address data needs related to travel demand for commercial and passenger vehicles,<sup>19</sup> accessibility of opportunities,<sup>20</sup> and more. IDOT also acquires demographic and economic forecasts that inform revenue projections.

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<sup>11</sup> <https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/doing-business/manuals-split/opp/introduction.pdf>

<sup>12</sup> <https://bfis.app.dot.illinois.gov/>

<sup>13</sup> Source: IDOT staff.

<sup>14</sup> <https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/doing-business/manuals-split/opp/introduction.pdf>

<sup>15</sup> For example, bridge condition for bridges owned by other public agencies or private parties:

<https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/doing-business/manuals-split/local-roads-and-streets/chapter-06.pdf>

<sup>16</sup> <https://idot.illinois.gov/transportation-system/transportation-safety/roadway-safety/trcc/about-traffic-records.html>

<sup>17</sup> <https://ritis.org/>

<sup>18</sup> <https://www.replicahq.com/about>

<sup>19</sup> [Applications of IL Statewide Travel Demand Model \(illinois.gov\)](#)

<sup>20</sup> Source: IDOT staff.

- **IDOT-sponsored research.** IDOT oversees and sponsors research conducted by outside academic and partner organizations, such as the Illinois Center for Transportation at the University of Illinois Urbana-Champaign.<sup>21</sup> IDOT also funds projects through the Statewide Planning and Research program.<sup>22</sup> These programs and others often acquire, generate, or synthesize additional data beyond those currently held by IDOT.

## Data-driven applications

IDOT leverages the data described above in many of its activities, such as real-time reporting on travel conditions, state and local planning activities, and as an input to programming and grantmaking decisions.

### *Real-time reporting for the traveling public*

IDOT's data directly support two complementary systems that provide current system information for transportation system users.

- IDOT's web portal for the public, **Getting Around Illinois**, "is a web-based interactive mapping site that provides the ability to search and display several sources of transportation data."<sup>23</sup> It includes information on current weather conditions, construction-related closures, ongoing travel conditions, and more. It also provides average annual daily traffic and information on IDOT investments and other related activities. Many of the constituent elements of this site are also available as web maps within IDOT's GIS Online portal.<sup>24</sup>
- IDOT's data also supports the **Travel Midwest** website. Like *Getting Around Illinois*, this resource provides real-time travel information (congestion, roadway closures, weather warnings, truck parking, etc.) to users. However, the platform also allows users to register for regular downloads of the data. Until 2022, *Travel Midwest* had a larger focus, covering a coalition of Midwestern states. In its current form, it still covers all of Illinois and nearby parts of Wisconsin, Iowa, Missouri, Indiana, Michigan, and Kentucky.<sup>25</sup>

### *Informing state and local planning activities*

IDOT data are essential inputs to planning activities at both the state and local levels. First, IDOT provides data on the baseline conditions of the transportation system in Illinois. The state maintains a combination of databases that both state and local agencies rely on to understand the existing transportation network, including the following:

- **The Illinois Highway Information System (IHIS)**, which includes both the **Illinois Roadway Information System (IRIS)** and the **Illinois Structure Information System (ISIS)**. These databases provide detailed information on the roadways, bridges, and other structures that make up the state's highway system. They serve as a common reference for both state and local agencies in their ongoing transportation planning and programming activities.<sup>26</sup> Complete data for both ISIS

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<sup>21</sup> <https://ict.illinois.edu/research>

<sup>22</sup> <https://idot.illinois.gov/transportation-system/transportation-management/planning.html>

<sup>23</sup> <https://www.gettingaroundillinois.com/>

<sup>24</sup> <https://idot.maps.arcgis.com/home/index.html>

<sup>25</sup> <https://www.travelmidwest.com/About/History>

<sup>26</sup> <https://idot.illinois.gov/transportation-system/network-overview/highway-system/manuals.html>

and IRIS is available for download on IDOT's website,<sup>27</sup> with structure information also made available in a database called the Structural Information Management System (SIMS).<sup>28</sup> IDOT also makes end-of-year GIS files available for these resources.

- **IROADS.** The IROADS system provides an interactive web interface for users to reference data from IRIS and other sources related to the existing conditions of the state's roadways.<sup>29</sup> The system allows users to access multiple layers simultaneously for ease of comparison and review.
- **Traffic County Data System (TCDS).** The TCDS provides a web-based interface for users to access hourly traffic information from across Illinois.<sup>30</sup>
- **Bridge Information.** Like IROADS, this resource provides a web-based interface for users to access information about bridges based on data included in the ISIS.<sup>31</sup>
- **Bicycle facilities,** including the **Bicycle Level of Service (BLOS)** portal and the **Bicycle Facility Information System (BFIS).** The BLOS and BFIS provide a central repository for data on bicycle facilities across Illinois.<sup>32</sup>
- **Illinois Freight Analysis System (IFAS) Tool.** IFAS allows users to access data on commodity flows, freight highway needs, and other freight system data and issues.<sup>33</sup>
- **At-grade railroad crossings.** IDOT also provides an inventory of all at-grade railroad crossings in the state (included in the IHIS dataset).<sup>34</sup>
- **Airports.** IDOT publishes information on the usage and characteristics of the state's system of airports.<sup>35</sup>
- **Maritime system.** IDOT maintains a map of Illinois port districts and major waterways.<sup>36</sup> IDOT also maintains a map of the state's ferry services across the Illinois and Ohio Rivers.<sup>37</sup>
- **Transit.** IDOT maintains a map of the state's transit systems.<sup>38</sup> IDOT also periodically compiles and publishes various system performance measures, with a particular focus on the areas of the state outside the Regional Transportation Authority's service area.<sup>39</sup>

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<sup>27</sup> <https://apps1.dot.illinois.gov/gist2/>

<sup>28</sup> <https://idot.illinois.gov/transportation-system/local-transportation-partners/county-engineers-and-local-public-agencies/lpa-project-development-and-implementation/policy-and-procedures/sims.html>

<sup>29</sup> <https://webapps1.dot.illinois.gov/IROADS/>

<sup>30</sup> <https://idot.public.ms2soft.com/tcds/tsearch.asp?loc=Idot&mod=>

<sup>31</sup> <https://apps1.dot.illinois.gov/bridgesinfosystem/main.aspx>

<sup>32</sup> <https://experience.arcgis.com/experience/973edd2b56014715a767ddd1cceb854b>; <https://bfis.app.dot.illinois.gov/>

<sup>33</sup> [https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/pamphlets---brochures/freight-council/idot--state-freight-plan---isfac-meeting-2021-11-09-\(2\).pdf](https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/pamphlets---brochures/freight-council/idot--state-freight-plan---isfac-meeting-2021-11-09-(2).pdf)

<sup>34</sup> <https://apps1.dot.illinois.gov/gist2/>

<sup>35</sup> <https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/reports/opp/aip/2023-illinois-airport-inventory-report-final.pdf>

<sup>36</sup> <https://idot.maps.arcgis.com/apps/dashboards/b43758c142474ff4b9283c7029ab805a>

<sup>37</sup> <https://idot.illinois.gov/travel-information/passenger-services/ferry-services.html>

<sup>38</sup> <https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/maps---charts/transit.pdf>

<sup>39</sup> [https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/reports/opp/statewide-public-transportation-plan--final-report\\_2-15-18.pdf](https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/reports/opp/statewide-public-transportation-plan--final-report_2-15-18.pdf)

IDOT also provides its transportation system usage data through various public-facing reports and tools. These include:

- **Detailed traffic counts.** The Transportation Data Management System (TDMS) provides traffic counts at the hourly level.<sup>40</sup>
- **Annual reporting.** IDOT publishes various annual summaries of both roadway mileage and travel statistics, with some broken down by the national highway system vs. the total roadway system.<sup>41</sup>

IDOT also publishes dashboards and summaries of travel safety statistics, including:

- **Vulnerable Road User (VRU) Safety Assessment.** The VRU Safety Assessment includes various analyses of injuries and fatalities for system users in an interactive dashboard format. As part of the development of this assessment, IDOT “developed a high-injury network (HIN) and a predictive and systemic safety analysis for use by statewide safety stakeholders.”<sup>42</sup>
- **Crash statistics reporting.** IDOT also publishes current and historical crash statistics data, including a dashboard of fatal crashes<sup>43</sup> and annual reports on crash statistics with breakdowns by location, time of day, and category.<sup>44</sup> There are also more specialized reports available, such as the location of crashes involving a deer.<sup>45</sup> IDOT leverages this crash data in its regular publications, such as its Highway Safety Plans and Annual Reports.<sup>46</sup>
- **Traffic Stop Studies.** IDOT regularly publishes reports on traffic stops of both vehicles and pedestrians, leveraging the data provided by Illinois law enforcement agencies.<sup>47</sup>

IDOT also relies on its various data sources to complete federally required performance measurement and goal-setting activities, including:

- **Safety.** IDOT relies on its crash and safety data to establish various safety targets for fatalities and injuries on the roadway system.<sup>48</sup>

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<sup>40</sup> <https://idot.public.ms2soft.com/tcds/tsearch.asp?loc=Idot&mod=>

<sup>41</sup> <https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/reports/opp/travel-stats/2022-illinois-highway-and-street-mileage-statistics.pdf>; <https://idot.illinois.gov/transportation-system/network-overview/highway-system/reports/illinois-travel-statistics.html>; <https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/reports/opp/travel-stats/2022-nhs-stat-sheet.pdf>; <https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/reports/opp/travel-stats/2022-il-hwy-statistics-sheet.pdf>

<sup>42</sup> <https://experience.arcgis.com/experience/aae015c0f183478b86bd2522b767ddb4/page/Home/?views=Fatalities%2CBicyclist>

<sup>43</sup> <https://apps1.dot.illinois.gov/fatalcrash/snapshot.html>

<sup>44</sup> <https://idot.illinois.gov/transportation-system/transportation-safety/roadway-safety/illinois-roadway-crash-data/facts-and-statistics.html>

<sup>45</sup> <https://gis-idot.opendata.arcgis.com/datasets/illinois-deer-crashes-2018/explore?location=41.527792%2C-87.871778%2C9.36>

<sup>46</sup> <https://idot.illinois.gov/transportation-system/transportation-safety/highway-safety-plan.html>.

<sup>47</sup> <https://idot.illinois.gov/transportation-system/local-transportation-partners/law-enforcement/reporting/illinois-traffic-and-pedestrian-stop-study/studies.html>.

<sup>48</sup> <https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/safety/grants/resources/additional-info/2024-2026-performance-measure-chart.pdf>

- **Asset condition.** IDOT relies on system condition data to assess the share of roads and bridges in acceptable condition.<sup>49</sup>
- **System performance.** IDOT relies on its system usage data, including from RITIS, to inform its analysis of system performance, e.g., travel time reliability.<sup>50</sup>

IDOT also leverages its data to support agency planning, modeling, and forecasting activities, including:

- **Stakeholder and public opinion analysis.** IDOT leverages data collected from stakeholders and system users in the planning process to inform planning efforts and decisions.
- **Illinois Statewide Travel Demand Model (ILSTDM).** The ILSTDM allows IDOT to evaluate the potential impacts of transportation investments on travel. The ILSTDM provides a recent example of how IDOT has leveraged and synthesized many of the data sources listed above, including its own data sources (e.g., traffic counts), data provided by other agencies (e.g., geospatial information on regional transportation network links provided by Metropolitan Planning Organizations), third-party data (e.g., vehicle probe and location-based-services data on passenger and commercial vehicle travel patterns), and more.<sup>51</sup>
- **IDOT Equity Atlas.** The Equity Atlas provides a centralized platform through which IDOT staff can review socioeconomic, demographic, and other characteristics. Breakdowns are available by IDOT district.<sup>52</sup>
- **Interagency distribution of IDOT data.** IDOT provides access to many of the data sources it procures. For example, IDOT maintains a GIS data sharing program to enable interested agencies to access proprietary HERE data. More than 40 organizations are currently participating.<sup>53</sup> IDOT also provides local government agencies with access to other data sources, including Replica and the previously discussed resources on accessibility to opportunities.<sup>54</sup>
- **Revenue forecasting.** As part of the multi-year program development process, IDOT forecasts the revenues that will be available for expenditure on transportation investments. These forecasts leverage a combination of IDOT-collected data (e.g., VMT), data compiled from other government agencies (e.g., fuel consumption and vehicle registrations), and external acquisitions (e.g., demographic and economic forecasts).

### *Informing programming and grantmaking decisions*

Like its local agency partners, IDOT uses available data sources to support programming and grantmaking decisions.

- **Data-driven decisions on capacity expansion.** One example is IDOT's *Data Driven Decisions (DDD) Tool*, through which IDOT analyzes capacity expansion projects as part of its multi-year

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<sup>49</sup> <https://idot.illinois.gov/transportation-system/transportation-management/planning/transportation-asset-management-plan/performance.html>; [https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/about-idot/events/2023-fall-planning-conference/3%20-%20Breakout%20Four%20IDOT%20Data%20Sets%20Tools\\_Morgan.pdf](https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/about-idot/events/2023-fall-planning-conference/3%20-%20Breakout%20Four%20IDOT%20Data%20Sets%20Tools_Morgan.pdf)

<sup>50</sup> <https://www.fhwa.dot.gov/tpm/reporting/state/reliability.cfm?state=Illinois>

<sup>51</sup> "ILSTDM Development Report."

<sup>52</sup> <https://experience.arcgis.com/experience/99b10141aec143d4802d182cbcfdbc0c/>

<sup>53</sup> <https://idot.illinois.gov/transportation-system/local-transportation-partners/gis-data-share.html>

<sup>54</sup> Source: IDOT staff.

capital planning efforts. Among other sources, the DDD relies on IDOT traffic data, RITIS data, crash data, road network data, Census data provided via the Illinois Environmental Protection Agency, and records of IDOT emergency repairs.<sup>55</sup>

- **Asset management.** IDOT’s data, such as asset condition and system usage, also inform IDOT’s *Transportation Asset Management Plan (TAMP)*. With the adoption of the 2018 TAMP and its subsequent update in 2022, IDOT has shifted toward a more proactive use of preventative maintenance, informed by its ongoing asset condition assessment activities.<sup>56</sup>
- **Safety.** IDOT-maintained datasets, such as safety and crash data, inform the selection of both IDOT and local safety projects through the Highway Safety Improvement Program (HSIP).<sup>57</sup>

## Data management and governance at IDOT

To manage and oversee its enterprise data, IDOT has established a series of policies, procedures, and governance bodies. IDOT is also currently working to strengthen these systems and make its many data assets more readily accessible and usable to both IDOT staff, other agency stakeholders, and industry partners. The section below provides a brief overview of existing practices and ongoing areas of work.

### *Existing policies and procedures*

Data exist within the broader category of Information Technology (IT) resources. IDOT governs all IT resources, including logical assets like data and software, through department-wide orders, policies, and procedures.<sup>58</sup>

IDOT’s Bureau of Information Processing (BIP) is responsible to “coordinate the development, integration, and implementation of IT Assets to help the department provide services more efficiently and effectively.”<sup>59</sup> To achieve this goal, BIP works with the Illinois Department of Innovation & Technology (DoIT), as well as other bureaus and offices within IDOT. For example, all Bureau Chiefs and Regional Engineers must appoint at least one IT liaison to coordinate with BIP on any bureau or business area IT needs.<sup>60</sup>

IDOT’s “Information Processing Policy Procedures Manual” outlines the specific roles and responsibilities for agency staff to implement these goals. Among other data-specific elements, it documents policies and procedures for:

- IT governance, including as it relates to data management, governance, and information security
- IT procurements
- Data backups, restoration, and retention
- Application development and support (e.g., training)

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<sup>55</sup> <https://idot.illinois.gov/transportation-system/data-driven-decisions-for-capacity-projects.html>

<sup>56</sup> <https://idot.illinois.gov/transportation-system/transportation-management/planning/transportation-asset-management-plan.html>

<sup>57</sup> <https://idot.illinois.gov/transportation-system/local-transportation-partners/county-engineers-and-local-public-agencies/funding-programs/hsip.html>

<sup>58</sup> IT policies are guided by Departmental Order 8-1, with specific requirements outlined in the Information Processing Policy and Procedures Manual. Copies of these orders and policies were provided by IDOT staff.

<sup>59</sup> IDOT, Departmental Order 8-1.

<sup>60</sup> IDOT, Departmental Order 8-1.



Many of the data sources discussed above also have specific documentation and management resources. For example, IDOT's IRIS data system has a comprehensive manual available as a companion resource. The manual provides important information on the data within IRIS, including what, why, and how data are collected. It also provides information on how data are entered into the IRIS data system, including the cadence of updating and database structure.<sup>61</sup>

### *Standing IT governance bodies*

IDOT has also recently established several bureau and department-wide governance bodies to manage IT challenges, which include challenges related to IDOT's many data resources.

In 2023, IDOT established the Information Technology Council (IT Council). According to its charter, the IT Council's purpose is to "facilitate strategic alignment of IT resources to the department's priorities and prioritize the list of IT projects within the department..., obtain senior leadership's commitment to the prioritized list of projects and support...BIP IT staff with implementation of IT Council decisions." Its membership includes agency directors and bureau chiefs from across IDOT. In addition to prioritizing projects, it is also tasked to ensure that all prioritization processes are transparent.<sup>62</sup>

Also in 2023, IDOT established the IT Change Management Committee within BIP. Its purpose is to "use [a change management process] to review and approve current initiatives and potential future IT project initiatives across the department." In its weekly meetings, the Committee reviews all requests for IT support (e.g., adoption of new technologies) in alignment with IDOT's mission and goals.<sup>63</sup>

### *Ongoing data management initiatives*

BIP is also leading several IDOT-wide initiatives to strengthen data management practices. For example, BIP is developing a "data dictionary" to identify and catalog all data managed or held by IDOT. As BIP develops the dictionary, staff are also identifying how individual data sources feed into the many data applications managed by IDOT. When complete, the data dictionary will facilitate easier usage and sharing of IDOT's data resources.<sup>64</sup>

IDOT has also established a Geospatial Committee (GSC) to "provide Geographic Information System (GIS) data, infrastructure, and services to enable decision-making, improve efficiency, and enhance service to the department's stakeholders." Like the IT Council, the GSC is a cross-IDOT committee with representatives from key business areas. BIP chairs the committee, while the membership includes District GIS coordinators and bureau chiefs (or their designees). The GSC is responsible for facilitating alignment and providing transparency on resource prioritization.<sup>65</sup> It also provides input on topics such as:

- Data collected via LiDAR, unmanned aircraft systems, and other imagery methods
- Data analysis and reporting (e.g., dashboards)

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<sup>61</sup> [https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/manuals-guides-and-handbooks/highways/iris\\_manual.pdf](https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/manuals-guides-and-handbooks/highways/iris_manual.pdf)

<sup>62</sup> IDOT, "Committee Charter: Information Technology (IT) Council." September 26, 2023. Provided by IDOT staff.

<sup>63</sup> IDOT, "Committee Charter: IT Change Management Committee." March 27, 2023. Provided by IDOT staff.

<sup>64</sup> Source: IDOT staff.

<sup>65</sup> IDOT, "Committee Charter: Geospatial Committee." November 7, 2023. Provided by IDOT staff.

- Sharing of data products (e.g., internal, public)
- GIS software, infrastructure, and integration<sup>66</sup>

The GSC will also serve as a resource for other new IDOT efforts, including as one source of input to IT Council discussions and other still in-development programs (e.g., the Digital Delivery Program). The GSC will also complement the pending establishment of a new dedicated GIS unit within IDOT.<sup>67</sup>

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<sup>66</sup> IDOT, "Committee Charter: Geospatial Committee."

<sup>67</sup> Source: IDOT staff.

## Appendix A: Existing IDOT data

**Table A.1. System usage (historic)**

Data	Source	Update frequency	Format	Accessibility	Use
<b>Average annual daily traffic (AADT) and vehicle miles traveled (VMT)</b>	IDOT Traffic Count Program, which includes data collection at permanent stations and counts conducted on a selection of other facilities over 24 to 48 hours. <sup>68</sup> RITIS	Data collected throughout the year; reports and map products are updated annually. <sup>69</sup>	Web maps, PDF maps, shapefiles	IDOT: Historic Public: Most recent year	Planning, asset management, grant application evaluation, public information
<b>Hourly traffic volumes</b>	IDOT				
<b>Vehicle speeds</b>					
<b>Origin and destinations</b>	Replica, others				Modeling
<b>Mode choice</b>	Replica, others				
<b>Vehicle occupancy</b>	Replica, others				
<b>O-D data on Commercial Trucks</b>	FAF and ATRI truck OD <sup>70</sup>				Travel modeling
<b>O-D data on passenger cars</b>	Replica				Travel modeling ILSTDM
<b>Vehicle registrations</b>	Illinois Secretary of State	Monthly			

**Table A.2. Real-time travel conditions**

Data	Source	Update frequency	Format	Accessibility	Use
<b>Congestion</b>	HERE	Real-time		Public	

<sup>68</sup> <https://idot.illinois.gov/transportation-system/network-overview/highway-system/reports/illinois-travel-statistics.html>

<sup>69</sup> <https://idot.illinois.gov/transportation-system/network-overview/highway-system/maps/average-annual-daily-traffic.html>

<sup>70</sup> [Applications of IL Statewide Travel Demand Model \(illinois.gov\)](https://www.illinois.gov/transportation/Statewide-Travel-Demand-Model)

Data	Source	Update frequency	Format	Accessibility	Use
<b>Weather conditions (radar, warnings, flooding, snow cover, etc.)</b>	Mix of NWS and reports Roadway weather information system <sup>71</sup> Snowplows report data <sup>72</sup>	Real-time			Public information Used to help in system management during weather (e.g., where to plow first)
<b>Temporary <u>Restrictions</u> Vertical clearance Weight restrictions Duration of restrictions</b>	Responsible agency reports (mix of IDOT, Tollway, and locals)	As updated, close to real time			
<b>Construction impacts Closures Detours Speed/weight restrictions</b>	Responsible agency reports (mix of IDOT, Tollway, and locals)	As updated, close to real time			
<b>Emergency closures</b>	IDOT <sup>73</sup>				

Table A.3. System characteristics and asset maintenance (road system)

Data	Source	Update frequency	Format	Accessibility	Use
<b>Road and highway system</b>					
<b><u>Truck routes</u></b>		As updated, close to real time			
<b>Permanent <u>Restrictions</u>, Vertical clearance Weight restrictions</b>		As updated, close to real time			
<b>Roadway facility <u>characteristics</u>, e.g., age, length, area, jurisdiction</b>	IDOT for IDOT facilities, locals for local facilities	Published annually (may contain data irregularities due to unreported changes off IDOT system)	Shapefile and database	Public, <u>IRIS</u> , with historical data to 1996	
<b>Interstate pavement condition</b>	IDOT inspection	Annual	Shapefile and Excel	Most recent available online	

<sup>71</sup> <https://www.gettingaroundillinois.com/MapView/?config=rwisconfig.json>; <https://idot.illinois.gov/news/remote-weather-stations-see-maintenance-and-innovation.html>

<sup>72</sup> <https://idot.illinois.gov/news/press-release.24148.html>

<sup>73</sup> <https://idot.illinois.gov/travel-information/roadway-information/road-closures/emergency-road-closures.html>

Data	Source	Update frequency	Format	Accessibility	Use
<b>Non-interstate pavement condition</b> IDOT facilities Non-IDOT facilities with functional class 1 through 6	IDOT inspection	Every two years	Shapefile and Excel	Most recent available online	
<b>Non-IDOT pavement condition</b>	Locals				
<b>Location of outdoor advertising (billboards)<sup>74</sup></b>	IDOT inventory	Last updated 6/25/2021	Web map	Public	General information
<b>Location of rest areas and welcome centers<sup>75</sup></b>	IDOT inventory	Unknown	Web map	Public	General information
<b>Structural facility characteristics, e.g., age, length, area, clearance, jurisdiction</b>		Published annually (may contain data irregularities due to unreported changes off IDOT system)	Shapefile and database	Public, <a href="#">ISIS</a> , with historical data to 1996	
<b>IDOT structural facility condition, Deck condition Superstructure condition Substructure condition Culvert condition NBI score FHWA PM score</b>	IDOT inspection	Visual inspection at least every two years except for good condition bridges, which are every four	Shapefile and Excel	Most recent available online	
<b>Non-IDOT Structural facility condition, Deck condition Superstructure condition Substructure condition Culvert condition NBI score FHWA PM score</b>	Local inspection				
<b>Underwater condition</b>	IDOT inspection	Every five years			

<sup>74</sup> <https://www.gettingaroundillinois.com/MapView/?config=OACSconfig.json>

<sup>75</sup> <https://www.gettingaroundillinois.com/MapView/?config=RWCconfig.json>

**Table A.4. System characteristics and asset maintenance (multimodal)**

Data	Source	Update frequency	Format	Accessibility	Use
Railroad crossing inventory				Public, RRX	
Freight and passenger rail network					
Bikeway facility characteristic, Facility type Length Location Various other characteristics	AHJ submit facilities (so it is not comprehensive)	Periodic, not comprehensive	<a href="#">BFIS</a>	Public	
“Bicycle Level of Service” (calculated for use in the bikeways map) <a href="#">Bicycle Maps by District (illinois.gov)</a>					
Trail inventory <a href="#">Trail Listing (illinois.gov)</a>					
Bike maps by county <a href="#">Illinois Bike Maps by County</a>					
TAMP data for downstate transit <sup>76</sup>					TAMP data for downstate transit
GTFS					
Performance measures <a href="#">y-performance measurements report.pdf (illinois.gov)</a>					
Airport system overview (flights, destinations, etc.)	FAA and webpages				
Airport rates and charges <a href="#">Rates-and-Charges-Final-Bugline.pdf (illinois.gov)</a>					

<sup>76</sup> [https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/reports/opp/transit/idot\\_wiu\\_ipta\\_group-tam-plan\\_tier-ii-agencies\\_2022\\_final.pdf](https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/reports/opp/transit/idot_wiu_ipta_group-tam-plan_tier-ii-agencies_2022_final.pdf)

Data	Source	Update frequency	Format	Accessibility	Use
Airport pavement condition <a href="https://idea.appliedpavement.com/hosting/illinois/airport-documents/pci-maps.html">https://idea.appliedpavement.com/hosting/illinois/airport-documents/pci-maps.html</a>	IDOT funded inspections				
Port locations and port district boundaries <a href="#">Illinois Port Districts (arcgis.com)</a>					
ITS <a href="#">Intelligent Transportation (illinois.gov)</a>					

Table A.5. Surveys/stakeholder feedback

Data	Source	Update frequency	Format	Accessibility	Use
Annual IDOT surveys					
Modal plan surveys					
Long-range plan surveys					
Comment solicitations					
Map tool inputs					
Stakeholder interviews					
Safety program effectiveness surveys <a href="#">Safety Surveys (illinois.gov)</a>					

Table A.6. Compliance

Data	Source	Update frequency	Format	Accessibility	Use
Weigh in motion data	<a href="#">Portable scales enforcement helps keep motorists, roads safe (illinois.gov)</a>				

Table A.7. Safety and law enforcement activities

Data	Source	Update frequency	Format	Accessibility	Use
<a href="#">Crash reports</a>	Law enforcement (paper, electronic, or third party submittal)	Annual		Overseen by ILTRCC – Data Collections	Informs HSIP and annual report
<b>Fatality and injury data</b>	FARS	Annual/Triennial			Informs HSIP and annual report
<b>Traffic and Pedestrian Stop Study System</b>	Law enforcement	Annual		Data Collections	Planning and analysis, e.g., <a href="#">final--part-i-executive-summary-traffic--6-30-23.pdf (illinois.gov)</a>

Table A.8. System investments

Data	Source	Update frequency	Format	Accessibility	Use
<a href="#">Annual highway improvement program</a>	IDOT	Annual		Public	
<b>Project costs</b>					
<b>Project status</b>					
<b>Vendor/procurement</b>					
<b>Local equivalents</b>					
<b>Contractor Prequalification (PQL)</b>	Compiled		Access Database		Manages Contractor Prequalification Ratings and Financial Capacity
<b>Electronic Contract Management (ECM)</b>	Compiled		IBM Mainframe		System of Record for Contract Creation and Project Cost Estimates
<b>Electronic Letting Management (ELM)</b>	Compiled		IBM Mainframe		System of Record for Letting Management and Contract Award/Payments
<b>ExeVision - Construction and Materials Management (CMMS)</b>	Procured		Web-based		Manage/Track Construction Projects and Materials
<b>ExeVision - Integrated Contractor's Exchange (iCX)</b>	Procured		Web-based		Electronic Bidding for Construction Projects
<b>Federal Program Management (FPM)</b>	Compiled		Web-based		Manages/Track Federal Project Agreements and Authorization Requests



Data	Source	Update frequency	Format	Accessibility	Use
<b>Highways Procurement Policy Review (HPPR)</b>	Compiled		Web-based		Manage/Track Potential Conflicts of Interests and Financial Disclosures with Procurement Policy Board
<b>Contractor Certified Payrolls (LCPtracker)</b>	Compiled	Weekly	Web-based	Internal	Workforce Demographic and Weekly Utilization Data and Weekly Reporting.
<b>Letting Database (LET)</b>	Compiled		Access Database		Manage/Track Project Information and assign Letting Dates
<b>Oman Systems Inc. - BidTabs and ProEstimate</b>	Procured		Web-based		3rd Party construction cost estimating software
<b>Pay Estimates (PES)</b>	Compiled		Access Database		Repository of historical bid result information. Used in historical bid-based estimating
<b>Subcontractor Registration (SCR)</b>	Compiled	Weekly		Public	Subcontractor Construction Company Registry
<b>Vendor Portal Admin (VPA)</b>	Compiled		Web-based		Vendor management and interface system with ELM and iCX
<b>Web Construction Transportation Bulletin (WCTB)</b>	Compiled		Web-based		Online program that functions as the advertisement for bids and interfaces between the public and IDOT for bidding information
<b>Web Planning and Programming System (WPPS)</b>	Compiled		Web-based		Project information for planning and programming
<b>Fuel Cost Index</b>	Compiled		Web-based		Used to adjust payments for No. 2 ULSD in construction contracts; Information sourced from DTNFastRacks via Central Management Services
<b>Steel Cost Index</b>	Procured		Web-based		Used to adjust payments for steel in construction contracts; Information sourced from Engineering News Record subscription
<b>Bituminous Cost Index</b>	Compiled		Web-based		Used to adjust payments for bituminous materials in construction contracts; Information averaged monthly from top 10 certified sources

Many of the data types listed in the tables above include a geospatial component (e.g., shapefiles of system investments). In addition to those geospatial data sources, IDOT also manages several other spatial data resources, examples of which are included below.

**Table A.9. Spatial data**

Data	Source	Update frequency	Format	Accessibility	Use
System rights-of-way					
Parcels					
Known IDOT-own properties					
Known State-owned properties					

**Table A.10. IDOT administrative data**

Data	Source	Update frequency	Format	Accessibility	Use
IDOT HR					
Workforce transactions (new hires, promotions, transfers, separations, etc.)	IDOT HR			Reported quarterly	
Human rights complaints				Reported quarterly	
Underutilization				Reported quarterly	
Employees by disability status				Reported quarterly	
Workforce statistics: <ul style="list-style-type: none"> <li>• By EEO category</li> <li>• By region</li> <li>• By gender</li> <li>• By race</li> </ul>				Reported quarterly	
Affirmative action program goals				Reported quarterly	
IDOT records					

Data	Source	Update frequency	Format	Accessibility	Use
Statistical data on the racial, ethnic, age, sex, disability status, sexual orientation, gender identity, and primary or preferred language demographics of program participants. Currently, this only includes gender and age data for participants in the Cycle Rider Safety Training Program. <a href="#">idot-july-erja-report.pdf (illinois.gov)</a>				Reported annually	

Table A.11. Revenue and forecasting-related data

Data	Source	Update frequency	Format	Accessibility	Use
Fuel consumption and motor fuel tax receipts	IDOR	IDOR updates monthly			Informing revenue forecasts, e.g., for the MYP
Vehicle registrations and fee receipts	ILSOS				Informing revenue forecasts, e.g., for the MYP
Fuel consumption and fuel economy	U.S. EIA				Informing revenue forecasts, e.g., for the MYP
Transportation-related sales tax receipts	IDOR	IDOR updates monthly			Informing revenue forecasts, e.g., for the MYP
Federal revenue projections	U.S. DOT				Informing revenue forecasts, e.g., for the MYP
Demographic and economic forecasts	S&P				Informing revenue forecasts, e.g., for the MYP
Bond funds					Informing revenue forecasts, e.g., for the MYP
Investment income					Informing revenue forecasts, e.g., for the MYP