



# The Case for Interactive Cloud-Based NEPA Documents

How Interactive Cloud-Based Documents Can Improve  
Decision-Making, Increase Equity and Collaboration,  
Build Trust, and Decrease Delays During the NEPA Process

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# Average time for an EIS currently at 4.5 years

## Key Delay Factors

1. Increased demand for public input
2. Lengthy and complex environmental documents
3. Time it takes regulatory agencies to complete reviews
4. Lack of transparency and accessibility
5. Threat of lawsuits
6. Understaffed regulatory agencies
7. Complexity of decisions involving multiple jurisdictions

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*Delivering an ambitious infrastructure program requires a new approach – one that not only promotes engagement but also decreases the time required to make decisions on transportation projects that increase accessibility for all while decreasing our carbon footprint. Online, interactive, digital solutions like PlanEngage will be essential to deliver these projects on task and on time with better outcomes for all.*

– Jennifer Aument, Global CEO, Transportation, AECOM

The Infrastructure and Investment Jobs Act (IIJA) solidifies the One Federal Decision policy for the National Environmental Policy Act (NEPA), including coordinated federal approvals, page limits and time constraints. This highlights an immediate need for documents that better communicate details about projects to stakeholders, as well as more real-time collaboration between federal agencies.

The impetus for the new NEPA requirements includes well-documented delays during the infrastructure approval process (which are highlighted in several recent articles at the end of this article). To date, environmental documents have been hard copy- or PDF-based.

Cloud-based, interactive, digital platforms for NEPA reviews are necessary to support project sponsors and federal agencies in meeting the 2-year environmental review schedule included in current law.

With the average time for an EIS currently at 4.5 years, these digital tools will shorten the cumulative amount of time spent reviewing documents on traditional schedules by 50% through real-time concurrent reviews by agencies and more rapid (better) understanding of the NEPA materials and projects. Public reviews are also more meaningful and transparent.

# On Time, On Task

## Deliver EISs in 2 Years with Cloud-Based, Interactive NEPA Documents



**Save time** shuffling documents between agencies and across firewalls - cloud-based platforms are accessible with a log-in and give all agencies the opportunity to review the same information in real time.



**Faster, more effective reviews** - engaging and interactive content with all components linked together allows for faster reviews. Agencies log in to see all text, technical map content, and supporting technical studies in one place. Reviewers can interact with highly technical geospatial data, adjacent explanatory text, and ever-present table of contents on one screen.



**Real-time, inter-agency collaboration** with concurrent editing and commenting



**Earlier resolution of conflict** - collaboration between agencies allows for identification and resolution of conflicts earlier in the process, which also reduces the number of formal comments on the Draft EIS requiring responses



**Thorough and high-quality community engagement** - more accessible and transparent to stakeholders, agencies, and the public



Deeper and **consistent understanding** of project from onset



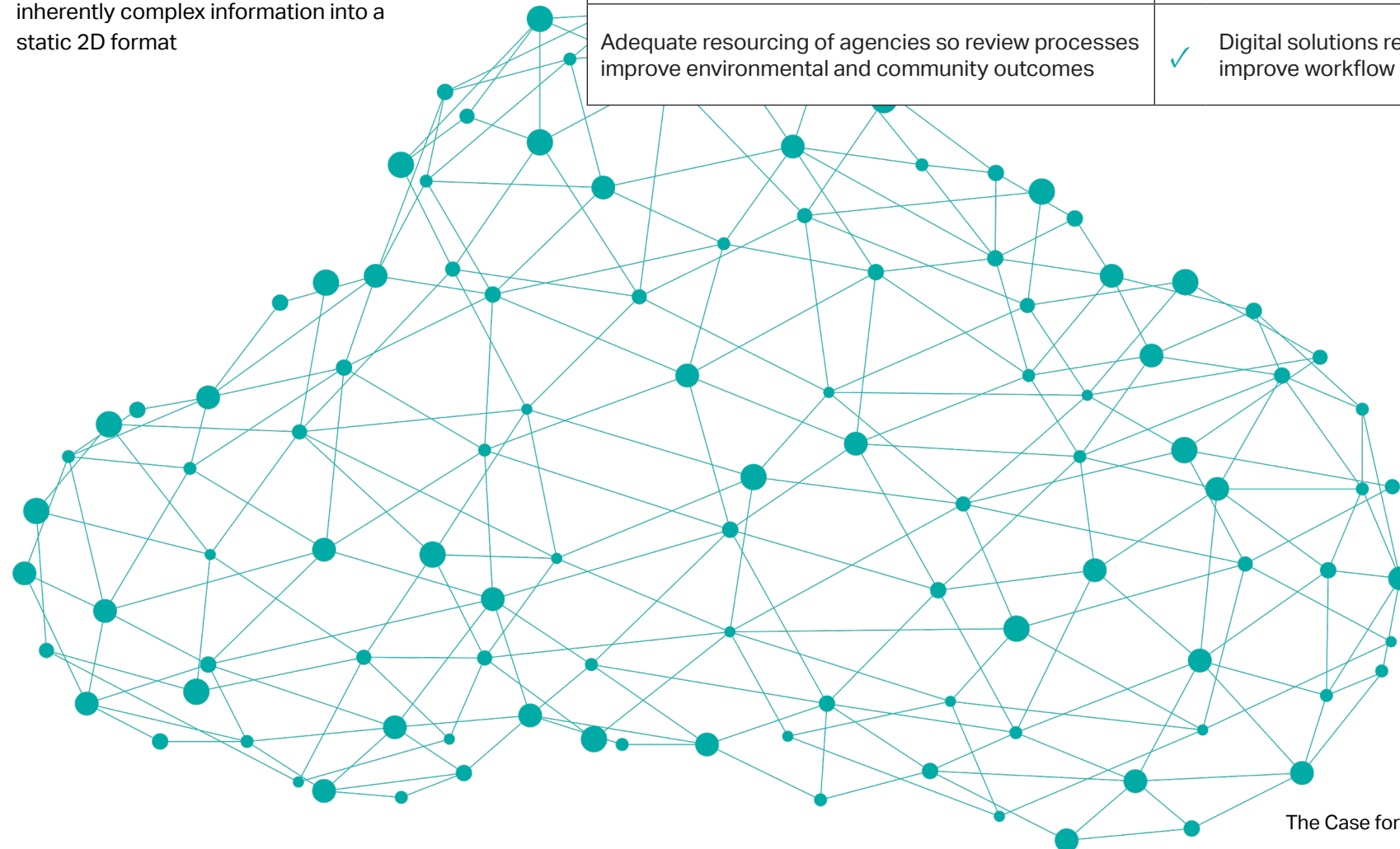
Workflows and reviews are **streamlined** with editing and commenting capability



**Less time** for consultants to organize inherently complex information into a static 2D format

# Digital Technology Critical to the Success of the Biden Permitting Action Plan

Permitting Action Plan Goal	Cloud-Based, Interactive Digital Platform Capabilities
Early cross-agency coordination	✓ Enables real-time online collaboration
Clear timeline goals and tracking of project info to improve transparency, accountability and certainty	✓ Cloud-based interface and workflow management ensure all entities are working off the same document
Early and meaningful outreach state/local/tribal and community stakeholders	✓ More accessible, intuitive, and interactive format to enable earlier and deeper engagement.
Improved agency responsiveness and technical assistance	✓ Real-time communication paired with visualization of proposals and alternatives improves understanding and enables higher quality of engagement.
Adequate resourcing of agencies so review processes improve environmental and community outcomes	✓ Digital solutions reduce paperwork burden and improve workflow management





# Increased Demand for Public Input

## Context

- Recognized need for more equitable ways to participate
- Demand for more public voice in government actions
- Social media and the ease of organizing opposition
- Accessibility of information about a proposed project from online sources other than the sponsor
- More empowered public

## How cloud-based, interactive documents can help

- **Interactive documents** include zoomable/clickable maps, before and after visualizations, photos, videos, sound demonstrations, and dashboards alongside explanatory, narrative text; this leads to a deeper understanding of the proposed project, its benefits, and impacts
- **Display of key findings** on a visually appealing, on an intuitive collaboration platform that allows stakeholders to clearly view proposed projects, potential alternatives and impacts, and relevant documents
- Interactive documents bring more opportunities to quickly **simplify complex technical topics**, bringing more robust insights and project understanding - the public can focus in on specific areas of interest in a friendly, accessible way
- **More equitable community engagement** through mobile phone-friendly documents make documents accessible to a wider demographic, even those without computers or high-speed internet
- Built-in compliance with Section 508 (read out loud capability) and Web Content **Accessibility Guidelines** improve accessibility
- Interactive, **mobile-phone friendly** documents draw higher level of interest, reach a broader audience, and allow for a wider diversity of voices



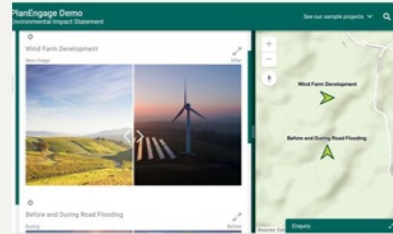


### The increasing need for equitable engagement

The Vox article states that “judicial, statutory, and administrative changes — in particular the passage of the National Environmental Policy Act (NEPA) in 1970 — have led to increased power for citizens. This isn’t inherently an issue — while it raises costs to engage with lawsuits, if it stops the government from taking harmful action, that could be a good thing. But often, we’re just paying for wealthy individuals to exert their preferences over everyone else”.

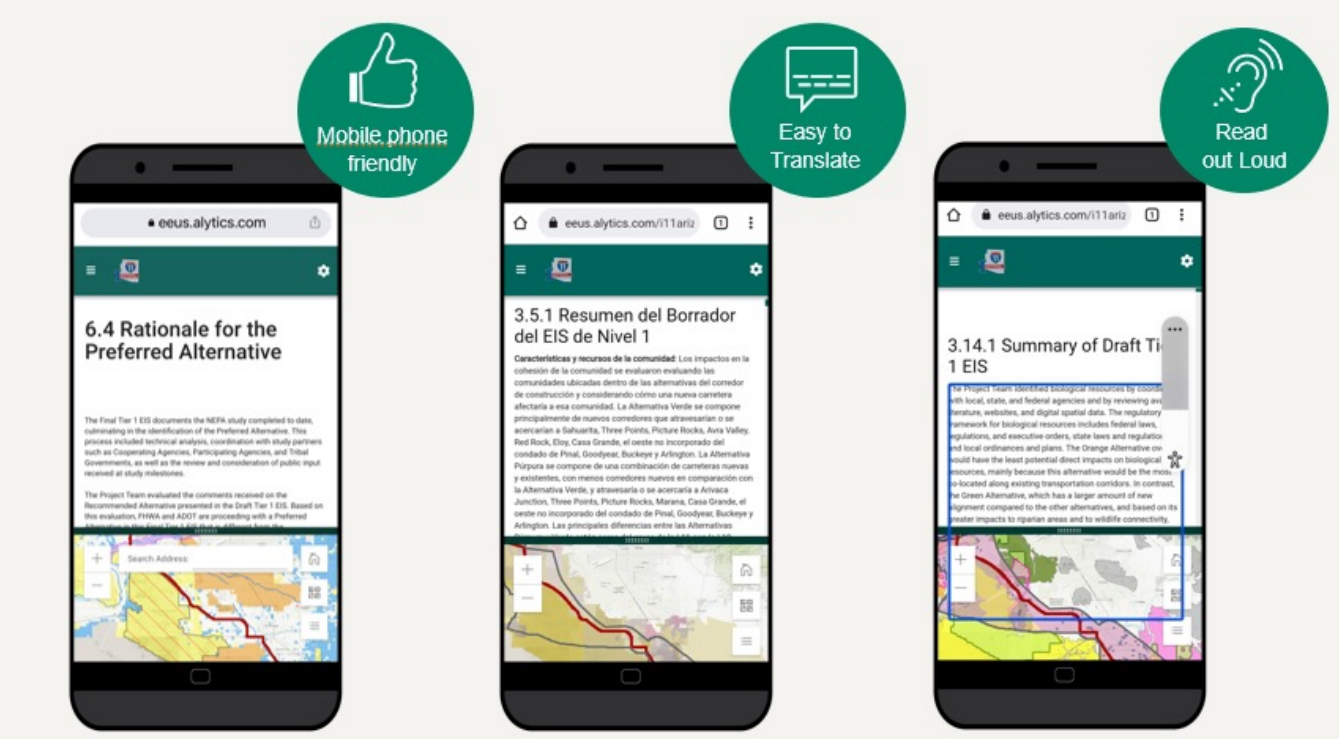
(<https://www.vox.com/22534714/rail-roads-infrastructure-costs-america>)



Interactive documents are engaging, transparent, accessible

 <p><b>Enhances understanding</b></p> <ul style="list-style-type: none"> <li>• Entire legal document is interactive</li> <li>• Readers interact with text, maps, videos, and visuals</li> <li>• Maps can move with text</li> <li>• Can print to PDF</li> </ul>	 <p><b>Reaches more people</b></p> <ul style="list-style-type: none"> <li>• Lowers barrier of entry</li> <li>• Broader diversity of comments</li> <li>• Available on <u>mobile phone</u> with simple cell service</li> <li>• Easily translatable to other languages</li> <li>• Fully 508 compliant (read-out loud capability)</li> </ul>	 <p><b>Fosters better feedback</b></p> <ul style="list-style-type: none"> <li>• Ability to comment while reading text or viewing a map</li> <li>• Comments can be targeted to specific geographic area, reducing ambiguity</li> <li>• All comments in one place with dashboards for analysis</li> </ul>
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## More equitable engagement



- Mobile phone friendly** (thumbs up icon)
- Easy to Translate** (speech bubble icon)
- Read out Loud** (ear icon)



# Lengthy and Complex Environmental Documents

## Context

- NEPA documents, including appendices, are thousands of pages long
- Regulatory agencies (e.g. USFWS, EPA, USACE) must find information specific to their jurisdiction amid thousands of pages of static text and maps
- The public is faced with myriad PDF documents to navigate, inaccessible on mobile phones (see below)
- The complexity of the documentation leads to frustration and inability to find information pertinent to the review at hand

## NEPA documents have become behemoths

"In the early days, NEPA's procedural requirements were modest: An EIS could be as short as 10 pages, and the legislation didn't provide for a private right of action. Courts soon declared a private right of action, though, and under the pressure of litigation the law's demands grew ever more onerous: Today the **average EIS runs more than 600 pages**, plus appendices that typically exceed 1,000 pages...And remember, no ground can be broken on a project until the EIS has made it through the legal gauntlet – and this includes both federal projects and private projects that require a federal permit."

[https://www.niskanencenter.org/faster\\_fairer/reviving\\_innovation\\_and\\_dynamism.html#Overhaul\\_Environmental\\_Review](https://www.niskanencenter.org/faster_fairer/reviving_innovation_and_dynamism.html#Overhaul_Environmental_Review)

## How cloud-based, interactive documents can help

- Interactive, cloud-based documents can facilitate page limits by **succinctly summarizing** the issues at hand for a particular chapter, and providing links to more detailed Appendices
- A **seamless online interface**, where multiple users can add content, can replace or complement traditional PDF-based and hardcopy formats, reducing version control errors and anxiety, and reducing the time it takes to review a document
- The **interactive menu** is always present, easing navigation through dense technical information - readers can drill down into substance without losing navigating away from the table of contents A built-in comment feature allows the public to comment at any time, on the same screen as the information at hand, rather than navigating to a different screen or comment tool
- **Location-specific comment** feature allows comments to be placed on a map to improve context and efficiency of public commenting
- Comment features allow for more targeted input, capturing the specific section the reader was reviewing at the time, and **reducing ambiguity in public comments**
- Interested parties can view and comment on relevant information in an **understandable format**
- Less time for consultants to organize inherently complex information into a static 2D format

## Traditional NEPA document

- [Cover, Abstract, Table of Contents, Acronyms and Abbreviations](#)
- [Executive Summary](#)
- [Introduction and Reader's Guide](#)
- [Chapter 1 Purpose and Need](#)
- [Chapter 2 Alternatives Considered in Draft Tier 1 EIS](#)
- [Chapter 3 Affected Environment and Environmental Consequences](#)
  - [Section 3.3 Land Use and Section 6\(f\)](#)
  - [Section 3.4 Recreation](#)
  - [Section 3.5 Community Resources Title VI and Environmental Justice](#)
  - [Section 3.6 Economic Impacts](#)
  - [Section 3.7 Archaeological, Historical, Architectural, and Cultural Resources](#)
  - [Section 3.8 Noise](#)
  - [Section 3.9 Visual and Aesthetics](#)
  - [Section 3.10 Air Quality](#)
  - [Section 3.11 Hazardous Materials](#)
  - [Section 3.12 Geology Soils and Prime and Unique Farmlands](#)
  - [Section 3.13 Water Resources](#)
  - [Section 3.14 Biological Resources](#)
  - [Section 3.15 Temporary Construction-related Impacts](#)
  - [Section 3.16 Irreversible and Irrecoverable Commitment of Resources](#)
  - [Section 3.17 Indirect and Cumulative Effects](#)
  - [Section 3.18 Required Permits and Actions](#)
- [Chapter 4 Draft Preliminary Section 4\(f\) Evaluation](#)
- [Chapter 5 Coordination and Outreach](#)
- [Chapter 6 Preferred Alternative](#)
- [Chapter 7 Summary of Mitigation and Tier 2 Analysis](#)

## Interactive NEPA document

**I-11 Final Tier 1 Environmental Impact Statement**

6.1 Summary of Recommended Alternative in the Draft Tier 1 EIS

6.2 No Build Alternative

6.3 Input on the Recommended Alternative

6.4 Rationale for the Preferred Alternative

**6.5 Comparison of End-to-End Recommended and Preferred Alternatives**

6.6 Capital

**6.5.1 Summary of Alignment Differences between the Recommended and Preferred Alternatives**

The Preferred Alternative is different than the Recommended Alternative in the following areas, as shown on Figure 6-1:

- The Preferred Alternative carries forward both the west option in Pima County (Recommended or Green Alternative) and the east option in Pima County (Orange Alternative), allowing ADOT to make a more informed decision after completing detailed environmental and engineering studies in Tier 2.
- The Preferred Alternative connects to I-10 at Park Link Drive north of Marana rather than Tortolita Boulevard, which is responsive to feedback from the Town of Marana.
- The Preferred Alternative incorporates a refinement in southern Pinal County to minimize impacts to the Santa Cruz River, in response to comments from USACE.
- The Preferred Alternative follows Montgomery Road north of I-8, which is consistent with adopted plans and local agency feedback.
- The Preferred Alternative uses SR 85 and I-10 in the Buckeye area, eliminating new crossings of the Gila River and Hassayampa River and minimizing impacts to critical riparian habitat and federally protected species.
- The Preferred Alternative was shifted slightly west near US 93 in Yavapai County to minimize impacts to residences, floodplains, wildlife linkages, and Sonoran Desert tortoise habitat.

BLM Land



# The Time It Takes for Regulatory Agencies to Complete Reviews

## Context

- The environmental review process is lengthy and complex, in part to defend against potential lawsuits
- Regulatory agency review time is a major factor in the schedule; while NEPA regulations set minimum timeframes for certain milestones (45-days for review of a Draft EIS), the agencies and public regularly request more review time for one reason – the length and complexity of the documents
- In addition, regulatory agencies (in particular cooperating and participating agencies) are engaged in reviewing information from the beginning of the project (as it should be), so their reviews comprise a much larger component of the project schedule than simply the Draft EIS review time

## How cloud-based, interactive documents can help

- Agencies log in to see all text, technical map content, and supporting technical **studies in one place**
- Engaging and **interactive content** with all components linked together allows for faster reviews
- Cloud-based documents, that simply require logging onto a website to view content, **reduce the need to transfer documents from one agency to another**, eliminating the time and risk associated with delivering word or mapping (Google Earth or ArcGIS) files across firewalls and ensuring all entities are working of the same document
- **Reviewers can interact** with highly technical geospatial data, adjacent explanatory text, and ever-present table of contents on one screen
- Reviews are not only faster, they are higher quality – **getting to the substance of the issue faster** and resolving conflict earlier in the process

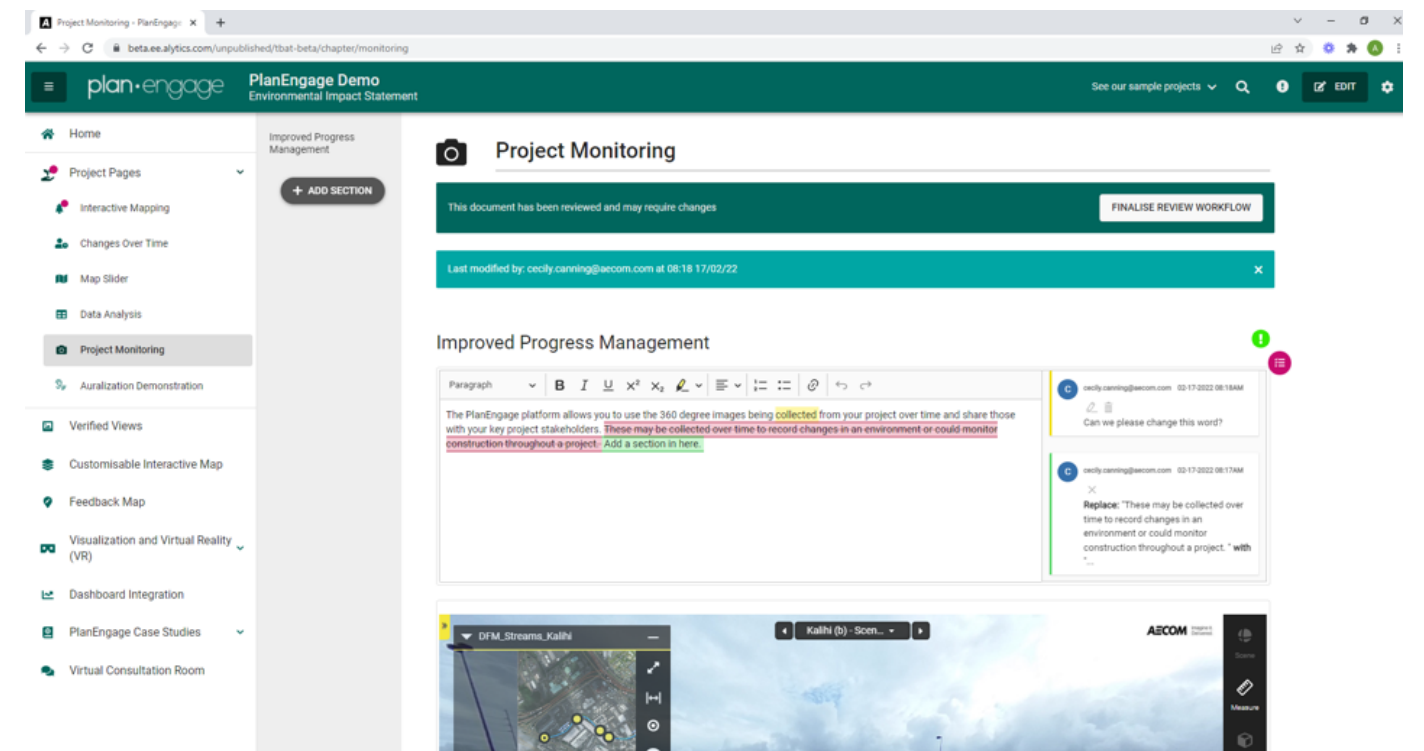


## Federal agencies must review volumes of documents

“The infrastructure law takes some initial steps at reforms, including codifying a Trump executive order to name a lead federal agency for each project, reducing the number of chefs in the kitchen, said Diana Furchtgott-Roth, a George Washington University adjunct professor. A key factor is the amount of time federal agencies spend to review environmental reports and issue records of decision, she said. In many cases, projects are put on hold for years, while agencies review voluminous documents.”

<https://www.nytimes.com/2021/11/28/us/infrastructure-megaprojects.html>

## Cloud-based reviewing and commenting





## Lack of Transparency and Accessibility

### Context

- The length and complexity of NEPA documents and difficulty in navigation means stakeholders who are not experts at NEPA or infrastructure cannot easily find information
- If stakeholders cannot find information readily, it leads to distrust, lack of credibility, and a perception of lack of transparency
- Some project websites include public-friendly interactive maps, reader-friendly fact sheets, videos, or story-mapping which is helpful; however, NEPA regulations require commenting on the actual environmental document, not summaries of it
- Converting and summarizing the legally binding technical document into an additional suite of public-friendly information can lead to misinterpretations and differing perceptions of the project (not to mention increased effort and project costs)

### Transparency and Delays

Joseph Schofer, a Northwestern University civil engineer and originator of the "Infrastructure Show" podcast says delays plague nearly all major infrastructure projects. The mistakes related to delays, he said, include a lack of transparency to the public.

<http://theinfrastructureshow.com/>

## The Threat of Lawsuits

### Context

- The threat of lawsuits has impacted the way environmental documents are prepared - from their length to the regulatory jargon that is used
- Long documents full of jargon may help defendants persevere in the courtroom, they do not build trust with stakeholders

### How cloud-based, interactive documents can help

- Creating an **interactive document** that allows stakeholders and review agencies to easily drill down into the information they need and interact with highly technical geospatial information builds trust and credibility
- **Building trust** with interactive and collaborative features reduce project risk
- **Collaborative reviews** facilitate conflict resolution
- Highly technical analysis (jargon) can be easily referenced with the click of a mouse, while **plain-English explanations** take center stage

### Federal agencies must review volumes of documents

Per SPUR's transportation policy director Laura Tolkoff, there are egregious examples of project delays by lawsuits from a minority few. "One person sued the San Francisco bicycle plan over parking losses which basically held up 34 miles of bike lanes for over four years. Over 2,000 individuals were injured during that same time period due to collision while riding their bicycle."

<https://www.vox.com/22534714/rail-roads-infrastructure-costs-america>

*SPUR is a nonprofit public policy organization in the San Francisco Bay Area known for independent and holistic approach to urban issues.*

## Understaffed Agencies

### Context

- Regulatory review agencies at the state and federal level are understaffed, meaning a project may have to 'get in line' for a general agency review, or for a specific resource specialist (for example, an expert on avian endangered species)
- Agency reviews are not a singular event, agencies are engaged from the onset of a project, and therefore review times compound over time

### How cloud-based, interactive documents can help

- Shorter and more effective reviews **improve agency efficiency**
- Agencies can reach better, **more informed decisions** in a shorter period of time due to the collaborative nature of the document and review process
- Cloud-based documents facilitate **more efficient reviews during remote work periods** or for project teams from various locations

## The Complexity of Decisions Involving Multiple Jurisdictions

### Context

- Multiple jurisdictions introduce a complexity in decision-making that the One Federal Decision process is attempting to address
- The federal government often provides funding for a project that requires multiple cities or counties to coordinate, sometimes without a clearly defined decision-making entity
- The intent of NEPA is to allow for collaboration across agencies; however traditionally this has been done through in-person meetings

### How cloud-based, interactive documents can help

- Cloud-based documents allow federal and state agencies to **concurrently review and comment on the same document** as well as see each other's comments, consolidating issues quickly
- Online interactive documents allow for concurrent reviews, enabling **greater collaboration among agencies**
- **Improved decision-making outcomes** in terms of timeliness, quality, and innovation – agencies are able to view and comment on relevant information in an understandable format and view other parties' comments in real time
- **Better understanding of project** leads to more substantive comments, less ambiguity, and reduction in comments related to not being able to find information



### Testimonial

*"The Interactive EIS was a first for ADOT and the State of Arizona, and it was a huge accomplishment for the I-11 study team. It allowed ADOT and FHWA to explore an alternative method for virtual public involvement, while providing tools such as shapefiles and map layers to help the public and agencies fully understand the Final Tier 1 Environmental Impact Statement document. The success of the Interactive EIS and the number of views that it has received has clearly demonstrated its value to ADOT and the necessity to implement this kind of interactive tool for other studies."*

**Steven Olmsted, ADOT Program Delivery Manager**



# PlanEngage™ for Interactive NEPA Documents

Digital AECOM's PlanEngage brings an innovative cloud-based approach to the EIS process, strengthening communication between stakeholders, improving decision-making, and speeding up review cycles. This helps to eliminate unnecessary delays and ensure project milestones are met on time and on budget – ultimately delivering better outcomes for impacted communities and the environment.

## PlanEngage Key Benefits

### Collaborative Reporting and Review

Create a coordinated approach for everyone involved in the EIS process.

- Cloud-based technology unifies all project information in a centralized platform, ensuring everyone is working off the same set of documents.
- With versatile and easy-to-use collaboration tools, multiple agencies can review and comment in real-time, allowing information to be evaluated and edited faster and more effectively.
- Reports can be worked on simultaneously and submitted with transparency, not only saving time for everyone involved, but also ensuring stakeholders have access to the most up-to-date information.

### Inclusive Public Engagement

Enable all stakeholders – from public agencies to community members – to review projects that are being proposed in their cities, towns, and neighborhoods more intuitively, and more inclusively.

- Everyone can access and review the information they need effortlessly through a user-friendly online interface.
- Documents are easy to navigate and can include interactive visualizations like maps, multimedia, 3D modeling, and before & after sliders to provide robust insights and enhance project understanding – simplifying even the most complex technical topics – and bringing them to life.
- Mobile-friendly information sharing allows community members to participate and ask questions from any device at any time drawing higher levels of interest, reaching broader audiences, and enabling a wider diversity of voices.

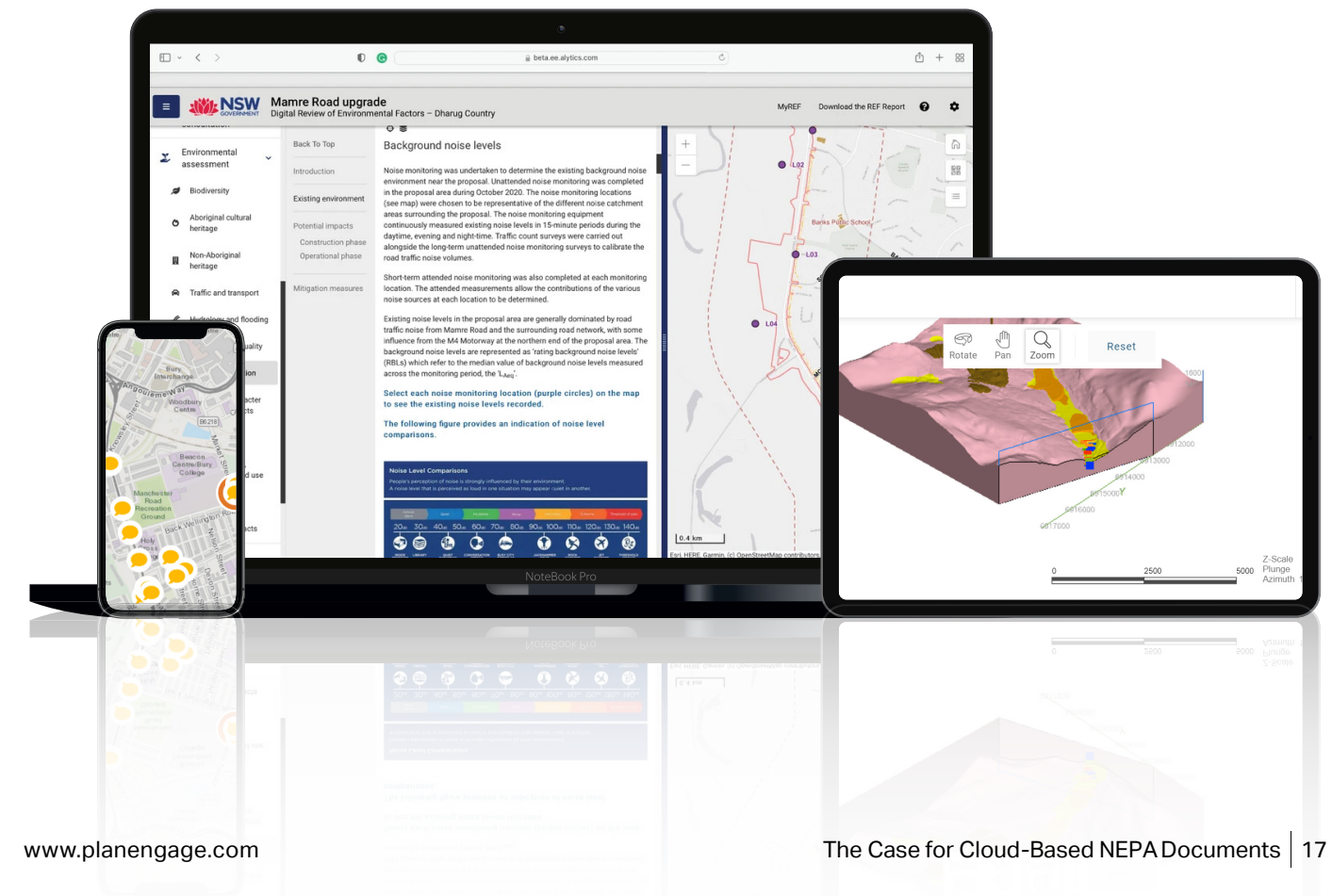
### Faster Permitting

Streamline effective communication and decision-making, eliminating unnecessary delays.

- Implementing intuitive tools allow stakeholders to provide direct feedback more quickly and easily, fostering greater clarity and reducing review cycles.
- A collaborative approach for multi-agency reviews ensure that issues and questions can be addressed promptly and efficiently. By bringing all information together in a unified platform, potential delays are avoided, objections are reduced, and resolutions are achieved in real-time.

- Interactive public engagement solutions that are easily accessible enable diverse perspectives to be leveraged, resulting in well-informed decisions that align with the expectations of all stakeholders. Proposed projects can be monitored transparently and tracked through to final approval faster and with more certainty.

[Schedule a demo to learn more about how PlanEngage can be used for interactive NEPA](#)



# Articles Highlighting Delays in Infrastructure Approval Process

Two Years Not Ten Years, Redesigning Infrastructure Approvals, CommonGood, Philip K. Howard, 2015



<https://static1.squarespace.com/static/5db4d0eacb29b173254203d2/t/5ee3a6f2072df850bd9a0aa3/1591977716039/2YearsNot10Years.pdf>

Overhaul Environmental Review to Bring Down Sky-High Infrastructure Costs, Niskanen Center, Brink Lindsey & Samuel Hammond



[https://www.niskanencenter.org/faster\\_fairer/reviving\\_innovation\\_and\\_dynamism.html#Overhaul\\_Environmental\\_Review](https://www.niskanencenter.org/faster_fairer/reviving_innovation_and_dynamism.html#Overhaul_Environmental_Review)

Why does it cost so much to build things in America? This is why the US can't have nice things. Vox, Jerusalem Demsas, June 28, 2021



<https://www.vox.com/22534714/rail-roads-infrastructure-costs-america>

Years of Delays, Billions in Overruns: The Dismal History of Big Infrastructure - The New York Times (nytimes.com), November 2021



<https://www.nytimes.com/2021/11/28/us/infrastructure-megaprojects.html>

Biden's \$1.2 trillion infrastructure bill could take years to transform U.S., Washington Post, Jeff Stein and Michael Laris, August 10, 2021



<https://www.washingtonpost.com/us-policy/2021/08/10/infrastructure-senate-spending-nepa/>