Title

GIS Integrations for Campus Operations

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UC GIS Week
Wednesday, November 20, 2024
3 pm - 4 pm
GIS Integrations for Campus Operations

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Sessions:

All right, everybody, welcome to day two of UC GIS Week on GIS day. We have a great panel of speakers this afternoon, all from UC San Diego. Shout out to them. And we're going to kick things off right away with Diana Henderson, who's going to be presenting on UC San Diego campus-wide construction alert GIS application. Uh, so take it away as soon as you're ready.

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UC San Diego Campuswide Construction Alert: GIS Application

Speaker: Diana Henderson - UC San Diego

Abstract:

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Provide an overview of UC San Diego's new Construction Alert Process. Easy-to-learn and use construction alert applications, within ArcGIS Enterprise, for use by Project Managers/Specialists in Construction Program Management and Facilities Management, were created. These GIS products provide the ability for PMs/Specialists to directly edit construction alert layers to facilitate:

- Improved efficiency for the campus construction alert process, as it pertains to geospatial layers/graphic creation/modification, and
- Standardization of campus construction alert maps for use by the campus community

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Okay. Yep. Let me share my screen here.

Right. Well, um, thanks everyone for being here. Thank you Maggie, Erin, and Danielle for hosting and getting GIS week together. Um, so I'll do a little bit of background as well. So I am the GIS program manager and, uh, this project in particular is a project that we've kind of been working on for about a year, but I will say, um, actually Maggie mentioned, um, when we were

talking behind the scenes that, you know, this is a UC San Diego group and, um, I, we just onboarded two new folks in May. Um, and they'll also be speaking today. We've got two GIS analysts. So pretty excited about that. Um, the program is growing and, um, really looking forward to see where this, this goes with the actual resources.

So, uh, this particular hour is dedicated to integrations for campus operations. My particular portion has to do with, um, UC San Diego's new construction alert process and, let's see.

There we go. Slides cooperating with me here. So as I said, I'm the GIS program manager. My fun fact, um, I played rugby for 25 years.

Uh, some people I have me included might say that's probably too many years. Um, and I've been at UC San Diego for now almost six years and, um, doing GIS for.

15, 20 years. So depending on if you include college or not. So just to give you a brief rundown of the contents of what we're going to go over. We've got a background in terms of like where you see a C is heading in terms of. Growth. Um, what we do from a, uh, public information perspective when we're, uh, trying to alert people that a, that a construction is going on in certain areas. And there is a lot of construction construction going on at UC San Diego. Uh, one of the few campuses that has plenty of space, though, sometimes we've got to tear down, um, to build up. Uh, we're going to talk about how the old process was justifying a need for a comprehensive GIS solution, then we'll showcase that the GIS application, uh, merits and for providing a simplicity and interactive visualizations. We'll do a demo of the applications.

Talk about considerations for the future and then conclusions in terms of like, what have we learned, uh, over the course of trying to build this, this, uh, project. And now onto questions, uh, with given time.

All right. So UC San Diego, we have currently, um, uh, 1158 acres. So we've got 63,400 students, staff, and faculty, uh, on campus at any given time. And the last, you know, eight years or so, uh, 3.4 million square feet has been built of new facilities on campus. So they say there's a lot, a lot of construction going on.

And if we look toward the future.

By 2020 or 2040, we're estimated to have 56,000 enrolled students, um, 40,300 and full-time equivalent employees. So that is quite a trend toward a lot of people.

Um, the goal for students is to be able to house 65% of them, which we currently have 18,000 new beds planned to be constructed over the next 15 years.

And then on top of that, we're going to be building support structures and for support, uh, facilities, um, or to redevelop research, healthcare, um, utility and, and, and utility infrastructure upgrades. So there is a lot going on. Um, so what happens now? We, we, we do certainly want to keep the public informed for those impacts on them, um, for commuting specifically, but also getting around campus and potential hazards.

Um, you know, off the cuff for construction alert process and in terms of how we build it, um, all, all new, uh, construction requires an all-campus alert. And those are initiated by the UC San Diego project manager. Now, nothing has changed between the legacy system to what we're doing currently. Um, but we, what we did have was a real list relies on a disconnected legacy system, uh, where we utilized email for internal review communications, which as anyone knows in a review environment, uh, email is clunky at best and, um, things just get lost, uh, and deadlines get missed at worst. Uh, so, and then there was a variety of static means for graphic representations. So, so what does that look like? Well, um, I have a few maps to show you, uh, that over the last couple of years, maps that have gone out, uh, for the alert process. Here's one of them. This is a, um, the current map Concept 3D is the base map and then, uh, a lot of sheeting and a bunch of, uh, call-out boxes, same here. This is now an aerial with a bunch of call-out boxes.

And a whole new base map with this, this is kind of a CAD base map, um, more call-out boxes, no, uh, no discernible legend that I've seen in anything. Hey, look, we've got a map with a legend. Um, and it's better than most, but of course it's static. This is, these are all PDFs or JPEGs that are embedded into the environment. And so, uh, again, lack of consistency of the base map, numerous and distracting call-out boxes, uh, you know, what's that phrase pictures worth a thousand words. Well, we're not letting the picture tell us any type of story when we're adding texts and call-out boxes into them. Uh, legends or title books are boxes are not used or inconsistently. So, and then it's really incomplete campus context and we'll see more of what that looks like because of the GIS solution, right? That this is no longer going to be static. We're moving into a dynamic environment.

So that's where we showcase the power of GIS and how we can provide what we hope from either the, uh, the editors who are the project managers and then the users in terms of being able to access these alerts and in context and in relation to possibly other alerts.

So we developed some, uh, we developed a team that helped us with, um, programmatic elements and building requirements and, and, you know, for a long time, the, those maps that you saw were a real thorn in my side. Um, every time I saw like a whole different version of call-out, call-out boxes, I would cringe and yet I really didn't have the resources to, um, alleviate that. So at some point prior to prioritization of really, uh, providing some consistency with these maps became, came to the forefront and when we were able to finally get some movement on building, uh, these applications. So we have prior funding, um, to hire a consultant and then we actually, um,

were, we, we early on in the process, we understood then that we could, while there's some emailing still going on, we're actually integrating, which used to be E-builder, uh, tremble unity connect. And we're, we're entering attributes and narrative into that environment. And the attributes are being used in GIS. We have a push, uh, of records into the GIS environment. And again, I just want to emphasize in the, and I have a, uh, a little bit about project management, but that having cross-functional team with, uh, capital program management facilities,

management and campus planning to help us build requirements, test and provide critical user feedback was really what has helped us get this over the finish line. And though I think it was maybe a slower process, I think it was a better process by having all these, these different entities involved.

So, uh, my specific role, uh, within this was I, I selected and managed the consultant facility, the project tour completion, uh, of a minimum viable product, trained users and GIS applications and process workflows and develop documentation supporting the development and process. So, um, I was essentially the project manager as it, as the, as the program manager, the tools that we were using. So right now we are using ArcGIS. Uh, we, we upgraded the summer to enterprise 11.3, um, experience builder and dashboards were used. Um, and then the positives just, just inherent within GIS, of course, besides, um, static environments, uh, CPM and FM project managers have direct control over editing, eliminating clumsy back and forth, symbology and base maps are standardized and information is memorialized in a geo database. And we'll try and get into that a little bit later. So here we go. Application demo.

Um, let me adjust.

Okay. So let me make this bigger would be, is this still readable?

Everybody? I don't know. I have a big screen. So all we'd see is a application demo. Oh, you do. Okay. That's a good comment. Let me see if I can, you might want to unfair and then re-fair your screen. You.

Okay.

So how about that? Yes, we can see that. Perfect. Okay. So this is the actual edit application. So what happens initially is, um, a record or an alert record is built in e-builder and then it is pushed over through an SFTP into the GIS environment where it's now picked up and we can actually.

View the records here, um, as, as subjects will call them in, in the cap details.

And just to, just to point out, and of course there's a lot of texts and there's modifications, like that's something for the future, but this, this outline is kind of like what our steps are to go through. And so rather than read through this, where I'm going to step through, um,

highlights as best I can. So in the cap details, we can, we can pick and select, um, different alerts.

Let's see.

I gotta, I have to refresh here because the process.

I think so. The long cooperative sometime refreshes our friend in this broad environment.

Okay.

Okay. So you'll see that by selecting one of the alerts, it actually provides me back with a set of details I can zoom in and this particular alert actually.

It's not happening details. Let's see if we can find this, have some existing features and that.

Okay. There we go. So you'll see that somebody, we've got an outline here and we've got no pedestrian

through, through Farah there.

And essentially, right. Like in the, in the edit, we create a map extent that tells us what the map view will look like, and then we, we select, um, a feature that we can then add into the map, wherever we need in terms of, uh, what those, and, and so the idea, right? Is that this is, this is the project manager is doing this work now. This is no longer, they're doing back and forth with, with campus planning.

Um, and then when we're done creating that we copy off, oopsies, not copy, but I will go copy a link, send me here. And we then provide this review link that slowly draws.

There we go. That looks better.

Okay. So this review link goes out to our reviewers who then take a look and decide, okay, do these have the elements that, that I need or think will help our audience understand what's going on with these alerts? Okay. So this is, this is not editable. It's just a viewing arena for reviewers. And then when I feel like, Hey, this is great. Let's, um,

uh, let's, let's push it over into approved.

Oh, I did skip ahead. Sorry, my bad. Um, and then you see these are rude. These are, these are publicly available.

And if I zoom out, actually, let me go to here.

So this other dashboard, now we can zoom into specific alerts.

And now you have access and I can even zoom out and you'll be able to see all the alerts in a public environment.

Okay. So in the interest of time, I'm going to move ahead. Um, I know this is just a tip of the iceberg for people, but like I said, just to get your, what your whistle a little bit and let me reshare.

Okay.

Okay. Back to the slideshow. So just quickly, um, we've got a quick diagram of like going through the edit process, starts an e-builder goes to the map.

We have to paste things back into e-builder and then review process, uh, everything until we get it to approve status and then review the process. Uh, everything until we get it to approve status and then it becomes a public alert.

So considerations for the future. Uh, we've got, um, this is facilitated through, uh, we can, we're trying to facilitate access, which we actually kind of already do external concern consultants through SSO. So ITS gets them access through an AD login.

Um, we'll investigate access to improve tools after our recent upgrade. And then we want to integrate Trimble Unity Connect and GIS directly.

Uh, we've got some midterm goals we'd like to work on is providing the ability for viewers to sketch directly in the application, incorporate webhooks to send notifications once reviewing is complete, develop field map applications to edit alert features in the field, aggregate statistics and dashboards by district project manager or consultant, and then possibly move workloads to the cloud.

That's a, that's a long-term goal for sure. Maybe not so much midterm.

So conclusions. Um, so this return on investment for, for a cohesive campus map messaging. Um, our internal team enhances this. We enhance decision-making, reduce data errors and improve efficiency and process. Like those are all the things that like for our core team, we were able to do. Um, and that is those who are also developing the alerts for users. This is, is a system with broad campus contacts and, uh, provides existing alerts in one dynamic environment.

So, and then like I said, just one last slide before questions. And that is, uh, for project management, the lesson learned in continuous improvement. Um, as I already talked to, touched on the cross-functional team relationships, evolving better communication, communication reports, other than email.

Um, this was a good, good lesson for me to learn balancing incremental releases with building to perfection. Um, continuing to monitor and evaluate applications to optimize performance for our future, uh, and then refine and evolve application requirements based on user feedback, um, which is what we will continue to do. So questions.

Thank you so much, Diana. We're going to take questions after all three presentations concluded. So please leave your questions in the chat though, as they come to mind and we'll address them later on. And now we're going to hand things over to Jingyi Huang and we're going to go from outside of the UC San Diego campus to indoors, where Jingyi will present on enhancing campus life, ArcGIS Indoors for smart space management.

Enhancing Campus Life: ArcGIS Indoors for Smart Space Management

Speaker: Jingyi Huang - UC San Diego

Abstract:

This presentation will introduce ArcGIS Indoors and its impactful applications in university campus facility management. ArcGIS Indoors offers a comprehensive platform for effective space management, enabling universities to optimize facility usage and track occupancy trends.

We will explore how its powerful data analysis tools enhance navigation and wayfinding for students and staff, while also improving asset management through monitoring. Case studies will highlight successful implementations, showcasing how ArcGIS Indoors fosters a more efficient, responsive campus environment. By leveraging this technology, universities can enhance operational efficiency and create a better experience for all campus users.

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Thank you, Maggie. And thank you, Diana, for the great presentation.

Um, so good afternoon, everyone. So good afternoon, everyone. For this session, we will explore how ArcGIS Indoors can transform the way we manage and navigate the campus space. With the growing demand for efficiency, data driven solutions, or ArcGIS Indoors provide a powerful platform for managing indoor space, enhancing both the experience and functionality of the campus environment. From room scheduling to wayfinding and facility management. We will dive in how this technology is streamlining operations and improving the overall campus life experience. Let's get started.

So a brief introduction about myself. My name is Jingyi. I'm a GIS analyst in the OMCP department and mainly focused on the ArcGIS Indoors and 3D campus stream projects.

While we start the ArcGIS Indoors projects, ArcGIS Indoors offers a comprehensive solution for enhancing university campus management, improving both operational efficiency and the overall campus experience.

For facility management, I just endorse tech assets like furniture and doors, enabling efficient maintenance and work order management, ensuring that buildings remain in top conditions. In terms of safety, the platform enhances emergency response by providing accurate for plants.

While also support real-time monitoring for improved security. With powerful data analytics, ArcGIS Indoors allow the university to make informed data driven decisions by checking space utilization, environmental conditions and asset status. This leads to better optimizations of resource and operational process.

Additionally, the platform improves user experience by offering good interactions and integrating seamless with other campus system. ArcGIS Indoors promotes sustainability and cost-saving by enabling energy management and reducing operational cost. This all-in-one solution transforms how the university manages the campus, creating smarter and more efficient environments.

The ArcGIS Indoors information models include the following layers for size, facility, level, details, reservations and point of interest. There are some other layers available in the ArcGIS information model to support other functions that the user would like to have.

After understanding the benefit of using the ArcGIS Indoors on campus, we developed a pilot project for the North Terry Pines Living and Learning neighborhood. The North Terry Pines Living and Learning neighborhood is in the northern part of UCSD campus, near the Torrey Pines Road area.

The neighborhood is designed to integrate academic and residential space, offering a mix of student housing, academic facilities and other places. It is part of UCSD's ongoing development to enhance the campus experience by providing both living and learning spaces so that we have better cooperation between students, faculty and the surrounding communities.

The workflow and information outlined below are based on our experience working with this specific neighborhood.

The creation of the ArcGIS Indoors information model was completed by student Audrey Taylor. She did an excellent job investigating the process of integrating data from multiple buildings into an indoor information model.

The process of transforming CAD data into the ArcGIS Indoors information model begins with careful checking the CAD files. The CAD files contain essential architectural details, including fall plans, room layout and asset locations.

Accurate CAD data is crucial for the successful transformation, as it formed the foundation of the indoor information model.

The quality of the CAD data affects the accuracy of the GIS-based indoor maps and the effectiveness of applications like wayfinding, room booking and facility management. Ensuring the integrity of the CAD data is essential for a successful indoor project. The first graph we have is the wayfinding path that we created based on the fall plan of one of our buildings.

The second graph in the middle is the plan that we added the point of interest into the layout so that for navigation, the user can quickly locate where is the point of interest that they want to go to. And for the graph on the right is the layout of the fall plan, including the asset location. By having the fall plan in ArcGIS Pro and adding those asset locations, those items, those assets, are no longer just a place on the ground or on the floor. Now it has a location. Whenever the user or any staff want to know where the asset is and where they should go to and visit, they can look in the fall plan and know the direction of the location. Now those interactions are in ArcGIS Pro and the ArcGIS Indoors function is not only on ArcGIS Pro. It can expand to ArcGIS Enterprise. In the ArcGIS Enterprise, you can view the 2D and 3D fall plans on the map. Also, the fall plan can be seen in the web application. The fall plan can be also used in the field maps for data collections. So after we have the fall plan, we can use the field maps to add more access

and more information into the system. The fall plan is a basic and also a foundation for all those future usage.

The fall plan can be also accessed by the application for further data analysis.

And last but not least, the fall plan can be used with the inner viewer for routing.

This is just a function that we are exploring at the moment. There are more functions of ArcGIS Indoors we haven't explored to, but we look forward to see what we can do on this. And the next will be the demo session on what has been created with the address indoor data.

So the first one is the web application that we create to use the data. From the application here on the background, we can see this is the fall plan of the building. On the top right is some filter for the user to filter out what point of interest they're interested in to check.

And for the room type is something similar to the point of interest filter, but this type, this filter can help the user to look for the specific room that they're interested in to visit. And on the left of here, of this screen, we can see there's two charts. The first one on the top is showing the percentage of the cross area for this building. And then one on the bottom is the number of rooms. This is just an example. With the data that the ArcGIS Indoors has, we can create multiple either dashboard or experience builder to showcase the data. The data can not only can show in set, like something that hasn't been changed or has been generated to the GIS system, but it can also reflect the data in real life.

And the next demo we have here is the way that those fall plans not only for viewing purpose, not only just viewing how many rooms we have and how many the assets we have, but also we can provide some further data analysts like here. We can use the create buffer tour to create a buffer for certain assets, knowing maybe what is the area that that assets will cover for services. And also we can have some other information about how to do the summarize the nearby location. Those are some applications that we can create from the data from the ArcGIS Indoors. And the next demo we're going to have is about the indoor viewer.

So I have a larger screen to showcase the demo here. This is a screen recording for the indoor viewer. From here we can see once we zoom in, we can see more details from the fall plan.

And on the top right here, we have the browse option to choose the building that we are interested to have a look at. This one I'm choosing the MOSA and after I click on it, the map will zoom to the MOSA building level one, and we can see there are two classrooms and have all the furniture detail there. Some of you may wonder, how about the data accuracy? For those concerned, ArcGIS enterprises have the function to choose what information can be shared to which group of users. So if we don't want to show that much detail with the user, we can choose not sharing the detail layer with them. So the second example is we zoom into a conference room in the catalyst building and maybe we will need to purchase some furniture for the room. Instead of going to visit the room physically, we can just use the indoor viewer to measure the size of the furniture that we might need to purchase. That will save a lot of time

for traveling. Okay, and the indoor viewer also have the function to see the fall plan in 3D. This 3D scene that we create is a combination with a 3D zoom image as well. So here you can see the indoor viewer automatically link the location between the 2D and 3D map. And here we can try to explore it a bit to move it from different places and to show the room here.

So this is how we can use the indoor viewer for just exploring the information.

And then the second demo we have here is about the navigations. One of the concerns we have here because for the university, I believe most of the students will spend most of time in the indoor to go to different classrooms, different TA offices. They will wonder like where is the office and where is the similar room and the indoor information model. Our just indoor will definitely help us with that. Let's have example here. I have a bigger screen as well. So here we have example the student is living in the tapestry building level

and he just click on his waiting for the elevator so he locate himself in the elevator here and he is going to have a appointment with a professor in the catalyst building level two in the conference room. So he just need to click on that and wait a bit for the system to process.

And when we are waiting for the system to create the route can see on the right here there are panel to showing the room number, the type of room, where is the building and the level of the building. Those information can be customized in the web map so we can show if you want to show more details that's definitely possible. So since we are in the demo session here, I already create the routing.

Before the meetings, so we can see, oops, not yet. Yep. So we can see here there's a

route has been created the route, the routing not only can show in the 2D map but also it can show in the 3D has a really good views about where you to go down to take the elevators and where did you go, where, what's the direction to walk to the conference room.

Okay, and that's all for my address in your presentation. In conclusion, this pilot project for the North Terrapine Living and Learning neighborhood is just the beginning. We will continue to include more buildings and explore other address indoor functions, such as the room reservation event management and space planning. And thank you all for your time and attention. I appreciate the opportunity to share the project with you and I look forward to any questions or discussion you may have. Thanks.

Thank you so much. That is absolutely fascinating. I think I have so many questions.

We're going to move on to our third and final presentation of this slot with Anna Maldonado and also from UC San Diego is going to talk about a future campus map. Take it away.

A Future Campus Map

Speaker: Anna Maldonado - UC San Diego

Abstract:

I am currently developing a GIS-based campus map to replace the current, non-spatially aware Concept3D platform. The goal is to create a dynamic, user-friendly map that enhances the campus navigation experience on a data-driven, spatially aware platform. The project is currently in the prototype stage, but we aim to incorporate key features such as interactive points of interest, wayfinding and directions, and precise ground-level layers. In addition, live transit information will be integrated through API connections, offering real-time locations of buses and campus shuttles.

This presentation will provide a look into the prototype, demonstrating how we will leverage GIS to improve the campus map experience. Looking forward, this will also pave the way for future integration of 3D and Indoor GIS.

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Great. Thank you.

Yes, as Maggie shared my name is Anna Maldonado and I'm also from UCSD working on the same team with Cuny and Diana and I'm excited to share another GIS solution that we've been developing and that's a GIS campus map.

So we do currently have a campus map as we shared earlier and it's hosted on the Concept 3D platform which some of you may be aware with. And over the past few years of using this platform several constraints have been identified both by those who maintain it and users. And one of the primary constraints is that it is a static and artistic representation of the campus, which looks pretty it does. It looks nice, but there's so many limitations that it brings along with it.

One of those is the inability to link tables or associate data for different assets and as you saw from our previous presentations, there's so much data that we maintain and that we do have available, but are not able to present that out to the public in this format. It also features a fixed true north. We're not able to view different orientations of the campus on this platform and that limits interactivity and restricts user navigation options significantly.

The maintenance of the map is tedious to say the least. Updating records is entirely manual and has to be done individually and naturally that's error prone. We can't synchronize it with our other data sets, which means updating two different data sets in different places at the same time that eats up a lot of time and sometimes leads to stale information. We can't get everything in a timely fashion and we'd like to have a more reliable map that we can point people to. Again, the user feedback that we've received from those who maintain it and those who use it that are seeking a more accurate and interactive map. We've heard the term a real map being used and we'd like to have a platform where we can fully leverage the data that we already have and share that out to the public.

So in reflecting on all of these limitations, we developed a GIS campus map. It's a prototype of pilot in a first draft form, but already we've identified several benefits of having it on in this platform and among those is a spatial accuracy that it brings. We have building footprints and ground level layers that accurately show our walking path or bike paths, parking lots, all of our landscape features, just to name a few. And this really enhances the wayfinding experience when what you're viewing on the map is accurate to what's on the ground. And again, to mention the data integration using our enterprise GIS system, we can relate a number of tables, what was shared previously as well. You could imagine the possibilities for incorporating indoors GIS and the 3D drawn imagery into this campus map where a user can navigate significantly more. And just to mention that the current campus map, the Concept 3D platform also doesn't offer very much to other departments like facilities management or campus planning landscape. There's not much use in it, but if we were to launch a map in GIS and provide different information depending on the needs, different applications, it would standardize this visualization of the campus, which would lead to more consistent data overall.

And to dive into the higher interactivity that I've been mentioning, we could go ahead and take a look at a demo of the campus map. So this is our 2D view that begins with some labels of different regions, but I'll jump into the 3D view and return to the 2D in a bit.

So we begin here with a 3D model of our buildings. You can see a light rail as well. And we highlight different points of interest at different extents. We highlight parking at the highest extent because it is the most searched for feature. These are all of our parking structures highlighted here. And just to demonstrate the legend as well, depending on the extent that you're at, it will highlight your features on the map. If you zoom in, more will appear and the legend is dynamic. You can identify those.

Just to quickly highlight the search function too, you could search for different points of interest using keywords. It'll bring back a list. You might be searching for parking, something like that. You might be searching for a specific parking structure. The one that I have in mind is the scholars parking. If we click on it, it'll zoom us to, it should zoom us to, might take a second, there we go. Zoom us to this underground parking structure at the North Shore Repines Living and Learning Center. And I chose this one to highlight the incorporation of the drone imagery which we just saw from Jingyi. And we can hope to, the plan is to have drone imagery for the whole of campus. And this really provides so much more context for the points of interest, like a parking entrance, such as this one, and the user could really clearly identify where exactly the restaurants or the parking entrances are.

Really providing that higher level of interactivity and navigation for a user.

And just to zoom out a bit, we're still working on labels and loading time, all of those features and are very open to feedback as well. I wanted to test out the wayfinding functions. You could say we're down here at the South Parking Structure and maybe you want to head to our Price Center, click a location on the map, and a

walking route will load. And it's jamba juice that it chose, and some directions, turn by turn directions and a time estimate will appear there.

Just to quickly take us back to the 2D side, it synchronizes with the 3D side, so our view on the 2D map would be the same, we can adjust our non-hero there. And all the same tools are available on the 2D side with all of the points of interest, toggleable as well. Somebody wanted to search for specific points of interest. There's also different base map options to switch them there.

Great. So just to go back to the presentation and share what's to come in the future, there's so much to enhance and add on to this starting prototype.

And not so far in the future, we're looking at incorporating live data feeds of campus shuttles and public transport, so you could imagine live points moving on the map showing accurate locations of where they currently are, parking feeds as well to show different parking availability, and as well as incorporating some ArcGIS Indoors into the campus map and the rest of the 3D drone imagery.

And that is all I have to share.

Thank you so much. Let's get a big virtual round of applause for Diana, Jingyi and Anna. These have just been absolutely fabulous and we've already got some great questions in the chat.

Q&A

So Naomi's got a question for Jingyi. For the indoor navigation, do you need to build your own network for routing or does Esri provide one?

Esri provided a tour to build a network for routing. So it's a combination that we do need to take some time for creating a network for indoors, but Esri have the tour available in IHS Pro.

Thank you. And I believe for Anna, on the campus map, can you customize the search terms, such as searching for unofficial place names?

Yeah, there's an option to add keywords, and so the keywords don't have to be visible on any pop ups. They could just be an attribute and in the experience builder side, which is where we built that application, you could add keywords as a searchable option.

Awesome. And my Anna has a question for all of our presenters, so maybe we can go in the order that y'all presented in. I imagine so much of this work requires coordination with other departments and roles. What are your strategies for success in getting buy in and equal participation from your campus partners?

Okay, well, great question and I'll probably tackle most of this since Jingyi and Anna have been here for six months and maybe don't have as good a feel for what the university has. So I will tell you much of what I have done in the six years at UC San Diego is build relationships and that is with emergency services, environmental health and safety, campus planning, capital program management, construction. So a lot of that is really just educating people in terms of what GIS even is. I don't think we're unique as a university in the UC in terms of GIS having been something that missed the boat. And so a lot of what I've had to do is just try and inform people that location matters and that there's better ways of doing things and the way they're doing things currently. So I regularly have meetings, I have monthly meetings with people and we do intend and I have, we've done some fits and starts in terms of stakeholders and we've had large group meetings that engage people and provide presentations to folks concerning our latest and greatest updates. In fact, on the sixth, Jingyi and Anna presented pretty much essentially what they just did to a group of 50 stakeholders within UC San Diego. So we certainly do a lot of outreach and that is understanding people's requirements and having conversations, whether it be weekly, monthly, whatever it is. So, and documenting those and then, you know, for me, the big thing is like also being able to demonstrate that we hear people and we hear their needs and then we're able to provide back tools that help them.

So, from my perspective, again, Jingyi and Anna being on board to be able to help me build the applications is huge. It's huge. As one person doing all the things, including updating a campus map as Anna noted, that is not GIS. It's a lot.

I don't know, Anna or Jingyi, do you have anything to add to that?

I think it was well said, lots of meetings with people.

Thank you. Yeah, building relationships is just so huge. It's trying to get any of this type of work done for sure.

Alicia asks a question. Where are you getting your drone imagery from?

Yeah, the drone image is really to a presentation I have yesterday for the, so we can check that video recording as well. And for the drone image, we have a 3D campus drone project as well. We have a DJI Mavis free enterprise and also have the SRE size scan for ArcGIS to process the data, a process image that we capture by the drone. We can then import the data, check the imagery, import the data to the size scan and then publish it to enterprise and to show that we can share with the organization and can be used in multiple different projects. Yeah.

Thank you. And yes, I want to second that. Once the video recordings are online, Jingyi's presentation on the drone imagery process was really, really fascinating. I definitely recommend you all check it out if you weren't able to attend yesterday.

Anya has a question. Does the GIS work done for the Campus Map demo and indoor mapping require special GIS programming software or is it all done in ArcGIS Pro?

Yeah, I can share for the Campus Map. It's all done using ArcGIS Pro, but we're also using enterprise and the apps, the apps that are built into portal so that was experience builder is used for the application. We also had Scene Viewer in there for the 3D Campus Map and some modifications in the web map viewer as well.

Thank you.

Does anyone else have questions for our lovely presenters?

Yeah, there's a quick jump in for that question about the indoor part. And for the indoor is mainly in the ArcGIS Pro. I guess ArcGIS Indoors has a set of the tools that is available for usage and to finish the process that it will require or recommend. So mainly in ArcGIS Pro and after that, it's a process to publish to enterprise. And also I think it will be available for ArcGIS online for some functions as well. And we also have people that always reach out to about ArcGIS Indoors question. Jing Ho from SREs to work on the project as well. Yeah.

Thank you. Oh, we got another question from Myana. How will you manage updates to the indoor data? Does another team maintain floor plans in CAD or will you move up in floor plans to GIS?

Demi, you want to say that? I have some thoughts.

So right now, yes. The space team actually maintains the floor plans in CAD. We are actively working and we have ITS team building requirements and we'll start this project soon that we're going to use FME to transform the data that is in CAD and then the attributes and try to link them and push them into indoors. And then to answer your question about moving to updating floor plans in GIS, that would be my hope. But first we have to get all of the floor plans into indoors and then we can take over the world.

Any further questions for this excellent San Diego team?

That's right, Myana. You want to get involved. We're happy to have team members in the efforts to take over the world.

I want to remind everyone that we do have a Slack space. So if you have further questions that come up after we wrap, you can feel free to post them there. And I believe we can find everyone's contact information online if you have follow up questions as well. And these sessions will get posted to YouTube, hopefully not too long after the conference wraps, you'll be able to rewatch these again if you want to learn more.

And if there are no final questions, then I hope everyone has a great rest of their day. And we have three sessions tomorrow. Hopefully it'll be as good as this session was this afternoon. We've got one on GIS for policy, health, transportation and zoning. One on ecology, seed collection, desert fires, tropical lagoons, and a session on climate effects on food, agriculture and the environment. So I think all of those are going to be really exciting. I hope to see you all there. And happy GIS day.

Thank you. Thank you.