



# CAMPUS GOVERNANCE

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Welcome to the seventh METR workshop. Today, we will talk about vehicle operations.

## Agenda

- Overview
- Campus Governance
  - Regulator Requirements
  - Authorization of Regulators
  - Campus Regulation Management
  - Jurisdictional Boundaries
  - Completeness of Data
  - Boundary Conditions
  - Change Control
- Next Steps

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After our overview, we'll dive directly into a series of discussion topics covering the variety of issues shown here.

# Acknowledgements

Small group has started structuring the problem

## Editors

- Tom Lusco (US)
- Jim Marousek (US)
- Ken Vaughn (US)

## Standards Process

- ISO/TC 204/WG 19
  - Drafting Team

## Reviewers


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- Steve Sill (US)
- Suzanne Sloan (US)

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It is important to acknowledge that the materials developed to date represents a team effort. While there is a core editing group, as shown in the upper left, the concepts presented within this presentation already reflect valuable inputs from the review team shown on the right. In addition, the overall document is being prepared under the auspices of ISO/TC 204/WG 19, and especially its METR Drafting Team.

## Ground Rules

- METR is very complex and involves many disciplines
- Workshops are based on this structure and designed to receive feedback
- If you have comments, please voice your concerns
  - Verbally (and concisely) during discussion slides (marked with  icon)
  - Using chat window
  - Using discussion forum (<https://github.com/ISO-TC204/iso24315p1/discussions>)

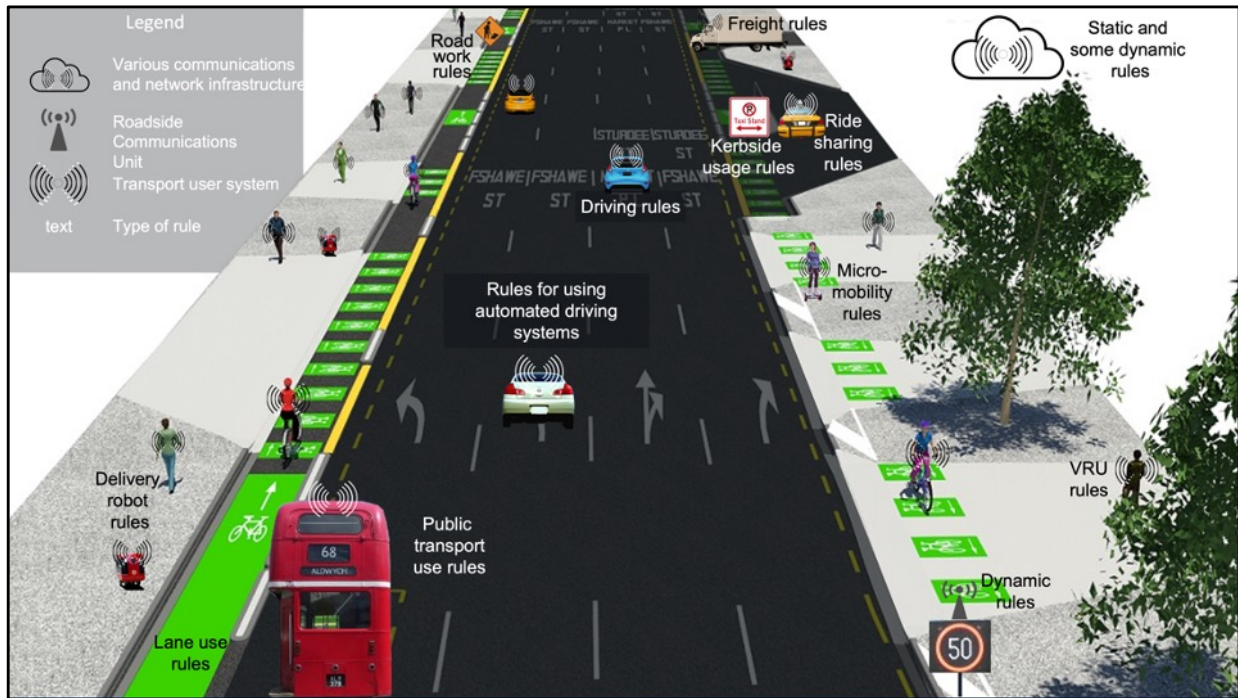
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Before we begin, it is useful for everyone to understand the ground rules of our conversation. The development of the ConOps is intended to be a cooperative effort that reflects the input from stakeholders from different perspectives. To facilitate this process, the development team has prepared the workshops to gain feedback from stakeholders – but your feedback does not have to be limited to the topics presented.

The workshops are generally structured to present a topic and then gain feedback. Participants are welcome to voice their concerns during the workshop presentations, either verbally or using the chat window, but we request that verbal feedback is made when we are on discussion slides. We also recognize that our workshops are time limited and comments should be kept fairly concise. If major topics of discussion arise we can schedule additional meetings to focus on specific points, as needed. We have also established a discussion forum on the Github site to promote off-line conversations and encourage everyone to use the facility,

After we complete the workshops, we expect to prepare a draft ConOps early next year, and there will be ample opportunity for additional comments on the document once distributed.



METR is intended to support all transport user systems. This includes: vehicle systems (e.g., automated driving systems and driver support systems), sidewalk delivery robots, and other devices such as smartphones used by pedestrians and perhaps units on-board micromobility devices (e.g., e-scooter interfaces)

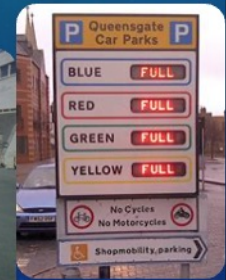
The information provided to these users would potentially include all rules related to using the transport facilities, such as (from top and proceeding clockwise) any special rules for freight delivery or for the operation of heavy vehicles, kerbside usage rules (e.g., bus stop, taxi stand), ride sharing rules (e.g., what forms of ride sharing are allowed), micromobility rules (e.g., are e-scooters allowed in cycle lanes), VRU rules (e.g., is the sidewalk closed to pedestrians), dynamic rules (e.g., variable speed limits, lane control signals), public transport use rules (e.g., does my ticket qualify me for a transfer, what are the fare zones), lane use rules (e.g., bike only, bus only, HOV-2), delivery robot rules (e.g., what is the maximum speed for a delivery robot for this sidewalk), road work rules (e.g., speed limit for the work zone). METR is intended to be flexible enough to address all of the transport rules, these are just a few examples that demonstrate the breadth of the effort.

Importantly, in order to cover all rules, the scope must include rules that can change

or be imposed in a dynamic fashion. For example, temporary lane closures due to unplanned incidents and signal timing information need to be considered and handled in a trustworthy way, even when long-range communications may not be available. Thus, the full scope of METR will likely need to rely on both cloud based delivery mechanisms as well as local broadcast of exceptional data.

## Regulator Requirements

- What are the minimum requirements to become an authorized jurisdictional entity that can issue regulations? For example:
  - Owner of the property
  - METR Certification
- Campus: jurisdictional area that is not managed as a part of the regional transport network



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Our first question for this week is what are the requirements to become recognized as a regulator? Some potential regulators might be very small entities (e.g., a small store with a few parking spaces where one space is marked for accessible parking). Is such an entity a “regulator” from the perspective of METR, and if not, how does such an entity register their rule(s) into the METR network?

Motorcyce parking -

[https://commons.wikimedia.org/wiki/File:Motorcycle\\_parking.jpg](https://commons.wikimedia.org/wiki/File:Motorcycle_parking.jpg)

Graffiti Parking - <https://www.flickr.com/photos/infomatique/8748003985/>

5 - <http://azfoo.net/gdt/babs/images/primesigns/5mphmilitary.jpg>

Variable Parking-

[https://upload.wikimedia.org/wikipedia/commons/thumb/f/f9/Full\\_Queensgate\\_Car\\_Park\\_Sign\\_Dec\\_2012.jpg/800px-Full\\_Queensgate\\_Car\\_Park\\_Sign\\_Dec\\_2012.jpg](https://upload.wikimedia.org/wikipedia/commons/thumb/f/f9/Full_Queensgate_Car_Park_Sign_Dec_2012.jpg/800px-Full_Queensgate_Car_Park_Sign_Dec_2012.jpg)

## Regulator Requirements

- Are there any restrictions on the size of a jurisdiction to participate in METR? For example, can an extended driveway for a single family house advertise a speed limit regulation? Can a multi-family house post parking regulations?



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As a follow-on to the previous slide, what are the absolute minimum requirements to be a regulator? Some properties might have long drives that serve multiple properties but are generally private. Are they regulators? Would any property owner posting a no trespassing sign be considered a regulator? If these are regulators, how do they become recognized as such and enter their data?

No Trespassing - <https://www.publicdomainpictures.net/pictures/90000/nahled/no-trespassing-sign.jpg>

Driveway – Ken Vaughn

Tenant - <https://www.flickr.com/photos/discoveroregon/31521005892>



## Authorization of Regulators

- What is the process for a small campus or town to become authorized to submit regulations? What entities authorize the town/campus?



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Now that we have established who can be a regulator, what is the process to become a regulator/campus owner? Who authorizes (or certifies) that an entity is the regulator/campus owner for an area?

## Proxy Agents

- Should a METR regulator be allowed to use a proxy (e.g., a small entity asking a larger or specialty entity to manage its regulations)?
  - Small town or campus assigning its traffic regulatory authority to the county or private firm
  - Campus assigning all or part of its authority to another entity that is leasing space (e.g., shopping centre)



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Does a small entity have to become registered through the formal process or might there be a simplified approach that allows a small entity to use a proxy to enter its rules. For example, might a small shop owner be able to use an interface into the local governments website to enter rules or might the small shop owner be able to hire another firm to collect and enter data?

## Campus Regulation Management

- How should campus regulators interact with METR as compared to governmental regulators?
  - Same way as government (i.e., provide translators with rules)
  - Additional level of review (e.g., provide rules to encompassing jurisdiction)
  - Other

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When creating its rules, what additional requirements might be imposed on campus owners? For example, are they required to have their rules approved by the local jurisdiction or are they allowed to post rules without review?

## Boundary Definitions

- Jurisdictional entities define official notices for their territory
- How do user systems know the territorial boundaries for each jurisdiction?
  1. METR needs to provide the normative definition of boundaries
  2. METR end systems will need to support separate mapping software that is maintained in a reliable way
  3. The mapping issue is outside the scope of METR

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Does METR need to explicitly define the boundary of each jurisdictional area or can METR assume that the transport user has a reliable map that will provide accurate boundaries?

## Jurisdictional Boundaries

- What is the process for defining and approving the electronic representation of a jurisdictional boundary (including campuses)?



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Given that jurisdictional areas change over time and that the areas might not be contiguous, what is the process for approving the electronic representation of the map, especially if provided by a non-METR source?

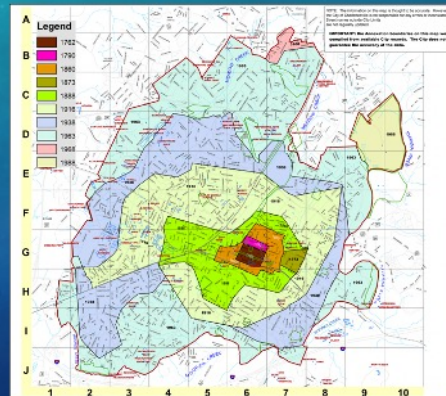
UT Austin - <http://clm.utexas.edu/conference/wp-content/uploads/2010/11/UT-visitor-parking-map.pdf>

Europe -

[https://commons.wikimedia.org/wiki/File:Herman\\_Moll\\_A\\_New\\_Map\\_of\\_Europe\\_According\\_to\\_the\\_Newest\\_Observations\\_1721.JPG](https://commons.wikimedia.org/wiki/File:Herman_Moll_A_New_Map_of_Europe_According_to_the_Newest_Observations_1721.JPG)

## Changes to Jurisdictional Boundaries

- What is the METR process associated with handling a jurisdiction being created or being subsumed into another entity?



What is the process to associate an area with a jurisdictional entity? New cities are created and existing cities expand their territory. What impacts does this have on METR operations?

Songdo - [https://upload.wikimedia.org/wikipedia/commons/thumb/7/70/Dong-gu\\_incheon\\_location.svg/1221px-Dong-gu\\_incheon\\_location.svg.png](https://upload.wikimedia.org/wikipedia/commons/thumb/7/70/Dong-gu_incheon_location.svg/1221px-Dong-gu_incheon_location.svg.png)

Charlottesville -

[https://www.cvillepedia.org/images/thumb/Annexation\\_map\\_cropped\\_shrunk.png/300px-Annexation\\_map\\_cropped\\_shrunk.png/](https://www.cvillepedia.org/images/thumb/Annexation_map_cropped_shrunk.png/300px-Annexation_map_cropped_shrunk.png/)



## Jurisdictional Entity Changes

- What should happen to existing regulations when the jurisdictional entity for a campus or facility changes? Should existing regulations remain in force until new regulations are issued?

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When the jurisdictional area has a new jurisdictional entity associated with it, what happens to previously defined rules? Do they stay in effect or are they nullified?

[https://s0.geograph.org.uk/geophotos/06/09/66/6096683\\_b6997be1.jpg](https://s0.geograph.org.uk/geophotos/06/09/66/6096683_b6997be1.jpg)

## Completeness of Data

- To what extent does METR need to indicate that a small campus facility (e.g., a shop's parking area) is not covered by any additional regulations (e.g., as opposed to not supporting METR)?



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There is a difference between the two statements:

- This facility has not entered any rules within METR, and
- This facility does not have any rules

To what extent does METR need to make this distinction (e.g., for each category of rules defined?)

[https://c2.staticflickr.com/4/3614/3369849126\\_655c914abb\\_z.jpg?zz=1](https://c2.staticflickr.com/4/3614/3369849126_655c914abb_z.jpg?zz=1)





## Boundary Conditions

- What implications on METR components might there be in dealing with a transport facility that straddles or is near a jurisdictional boundary? National boundary? Time zone boundary?

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Rules can vary from one jurisdiction to another and the locations can be next to each other. In some cases, the same street might be in different jurisdictions depending on which side of the road you are on. What implications does this have on METR?

Bristol Sign - [http://commons.wikimedia.org/wiki/File:Bristol\\_Virginia-Tennessee\\_Slogan\\_Sign\\_2012-09-27\\_21-44-45.jpg](http://commons.wikimedia.org/wiki/File:Bristol_Virginia-Tennessee_Slogan_Sign_2012-09-27_21-44-45.jpg)

Road marker - <https://www.flickr.com/photos/ornitholoco/5382649691>

## Change Control

- How quickly do jurisdictional changes need to be implemented on end user systems? Who has the authority implement these changes? What other implications does such a change have?



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When administrative changes occur to a campus owner or jurisdiction (e.g., a newly annexed area or a new owner of a campus), how quickly do the new details need to be conveyed?

[https://commons.wikimedia.org/wiki/File:MUTCD\\_W23-2.svg](https://commons.wikimedia.org/wiki/File:MUTCD_W23-2.svg)



## NEXT STEPS

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## Workshop Schedule

Date	Topic
28 September	METR operations
5 October	METR operational structure
12 October	Electronic regulation life cycle
19 October	Electronic regulation conflicts
26 October	Vehicle operations
2 November	Vehicle information needs
9 November	Campus governance
16 November	Campus regulations
23 November	Roadwork and emergency operations
30 November	Multimodal and micromobility operations
7 December	METR deployment: Part 1
14 December	METR deployment: Part 2

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We've now completed 7 of our 12 workshops. Our next workshop will focus on campus regulations

## Workshop 8 Topics

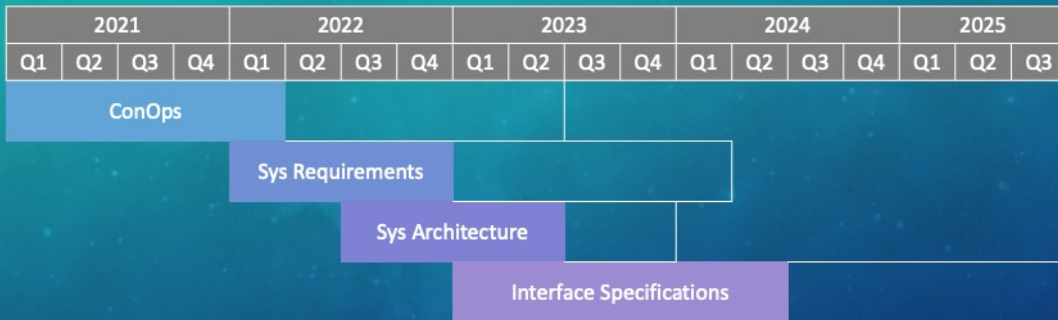
- Campus Regulations
  - Regulatory Process
  - Regulation Validation
  - Parking Approvals and Considerations

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The workshop will focus on the topics shown on this slide

## Tentative Schedule



- End of task shown at expected committee draft
- Transparent bar shows standards review and approval process
- System architecture is expected to be online only (i.e., it will use a shorter review process)
- Interface specification are expected to enhance existing standards

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As a reminder our current expected timeline is shown here. We hope to have a ConOps draft in early 2022, whereupon it will start the standardization process (of multiple reviews prior to standardization)

## More Information

More information and a discussion forum is available at:

<https://iso-tc204.github.io/iso24315p1>



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More information about the project and the latest developments will be posted on our GitHub site. This will include a PDF of weekly presentation files to be posted after our meetings each week.

[https://upload.wikimedia.org/wikipedia/commons/thumb/2/24/Cartoon\\_Guy\\_In\\_Deep\\_Thought\\_Using\\_A\\_Computer.svg/1200px-Cartoon\\_Guy\\_In\\_Deep\\_Thought\\_Using\\_A\\_Computer.svg.png](https://upload.wikimedia.org/wikipedia/commons/thumb/2/24/Cartoon_Guy_In_Deep_Thought_Using_A_Computer.svg/1200px-Cartoon_Guy_In_Deep_Thought_Using_A_Computer.svg.png)