



Maintainers III

Track Chair Notes

Lifecycles of Infrastructures

(John Laurence Busch, Gerard Fitzgerald, Matthew Hersch, Jung Eun Park, Amanda McMillan Lequieu)

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Jung Eun Park

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session? Transportation agencies, particularly those within those agencies who produce cost estimates for capital projects.
- WHAT kinds of work do these people do? Cost estimation for transportation infrastructure projects.
- HOW do they do it? Proposal by Bent Flyvbjerg is that they ought to take the “outside view” by using reference class forecasting to produce cost estimates based on costs of similar projects rather than relying exclusively on internal project characteristics.

Context

- Primary question: Are cost estimates produced through reference class forecasting more accurate than those produced through monte carlo simulation.
- Reference class forecasting is associated with lower average cost overruns (prior studies).
- Projects are more likely to go over budget in the US (where reference-class forecasting is not used) than in the UK (where reference-class forecasting is used). The differences in magnitude are statistically significant
- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
- Reference class forecasting improves transparency and accountability.

John Laurence Busch:

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session? Steamboat entrepreneurs, regulators
- WHAT kinds of work do these people do? Operate and licence steamboats in Colonial North America (New York State). Maintain rivers so steamboats can safely operate (clear or mark snags).
- HOW do they do it?



Context

- Steamboat monopolies had a term of 15 - 20 years, and included performance requirements (you had to operate the service, or you lose your licence - operators were required to clear or mark snags).
- Maintenance required for steamboat service benefits all river users.
- 1824 Supreme Court decision - Individual states can no longer grant monopolies for steamboat service.
- Does the lack of monopolies in providing transportation service and infrastructure disincentivize maintenance?

Gerald J. Fitzgerald:

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session? Chemists, engineers in the steam railroad industry.
- WHAT kinds of work do these people do? Soften, purify water for use in steam engines.
- HOW do they do it? Chemistry.

Context

- The problem is the build-up of impurities (solids) in the boiler.
- 50 years of research on how to purify water for steam engines (the hardness problem of water). Purifying water was a branch or railroad engineering.
- Science of hydrology also contributes to understanding of water quality.
- Water was 1% of operating expenses for railroad operators.
- The problem of water quality for railroads creates a lot of jobs for chemists.
- Efforts to purify water were effective in reducing steam engine failures.

Amanda McMillan Lequeiu:

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session? No one - the problem discussed is the absence of maintenance.

Context

- Meaning of transportation infrastructure in the rust belt
 - Transportation of industrial goods is what led to the settlement of that area.
 - Employment decline with industrial decline
 - Perception of need for transportation infrastructure provide jobs, economic growth
 - Loss of visible connection to past
 - Transportation represents connection to opportunity
- The state of and operation of transportation infrastructure represents connection to the broader region.
- Transportation was the part of the steel industry that was visible to those that didn't work in the mills (children).
- Absence of transportation infrastructure represents loss, invisibility, marginalization.
- Transportation represents potential futures.

Matthew H Hersch:



Basic data

- WHO were the maintainers/care workers mentioned in the paper/session? NASA and contractors.
- WHAT kinds of work do these people do? Testing for potential failures of space shuttles.
- HOW do they do it? Missed one single component. One simple error caused tragedy. Deficiencies were obvious, but the fatal flaws were impossible to fix. It was designed as a temporary placeholder for a future improvement - Planned obsolescence.

Context

- Common understanding of Challenger is that the project was too complex.
- An alternative observation is related to planned obsolescence - the design was meant as a placeholder until technology improved.
 - The space shuttle's commitment to a reusable winged, piloted spacecraft was unrealistic.
 - Compromise among competing views of what a space shuttle should be.

Overall Session:

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session? Institutions in both the private and public sectors.
- WHAT kinds of work do these people do? Funding, planning, constructing, and maintaining transportation infrastructure.
- HOW do they do it? By making large initial investment and through an ongoing commitment to maintenance and/or research into technologies that can replace infrastructures.

Context

- Large infrastructure projects are often justified in terms of benefits that are unrelated to their core mission or purpose.

What Do Maintainers Do?

(James Risk, Liska Chan, David Ballard, Andrian Deonancă, James Longhurst)

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David Ballard: bdballard@gra-inc.com ; Twitter: @dvdblld

James Risk: risk@mailbox.sc.edu;

James Risk:

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?. Lighthouse keepers, preference of government on maintenance vs. innovation for investment due to \$\$.
- WHAT kinds of work do these people do? Develop innovative methods for improvement of technologies. Gradual, incremental innovation bred through maintenance focus.
- HOW do they do it? Innovative approaches, new techniques.

Context

- Maintainers innovate.
- Maintenance of lighthouses/buoys/public piers. Treasury Department--network of regional customs collectors and lighthouse keepers.



- Few lighthouse keepers had formal training in mechanics. Often farmers, continental soldiers (reward for service).
- 1810: Winslow Lewis -- magnifying and reflecting lantern. Congress bought patent and awarded him a maintenance contract. Renewed for 4 decades.
- Lewis' system was not innovative. He stole the design from a lighthouse in England, a known oil lamp. Europeans knew the benefits of placing reflectors behind the lamp for some time. He capitalized on an idea as "great innovation".
- Over the next decades: fitted and maintained systems. Required him to travel to each lighthouse and inspect lamps.
- Treasury became reliant on Lewis. He reported back on state of upkeep. By the 1820s, he began to be responsible for building lighthouses. Other contractors stopped bidding.
- 1820s: Augustin Fresnel developed a new lighthouse lamp and remains the standard today. Treasury inquired about purchasing this lens but the technology was too expensive. Continued to privilege maintenance over innovation.
- 1819: Melville: invented an oil heater and defroster for lenses.
- 1841: Hemmenway made it possible for lighthouse keepers to refill the oil reservoir without removal of it which caused potential damage to lamps.
- 1844: Farrar developed new metallic reflector that provided better reflection.
- 1846: Wheeler developed better ways of controlling the oil flow.
- Maintenance vs innovation: petition to congress over lighthouse establishment. Removal of the Treasury from oversight and gave control to a 9-member lighthouse committee.
- Maintenance breeds innovation: focus on maintenance changes the history of America's innovative character.

Liska Chan

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
- WHAT kinds of work do these people do?
- HOW do they do it?

Context

- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
 - What recommendations or conclusions did the speaker/s offer?
 - What significant connections do track chair, audience, and/or speakers make to other presentations at MIII, or to other issues/articles/media outside of MIII?
- Making-do in Chinatown is part of the constant metamorphosis of this place. Creation of personalized amendments to existing structures.
 - Makeshift results, everyday hacks, gerryrigged.
 - Making do: innovative but not new, cared intimacy, tactical not strategic.
 - Why so present in Chinatown? Lowest income neighborhood in Manhattan. Making short-term inexpensive solutions to rental properties so can be removed.
 - Common materials: tape, wire, plastic tarps.



- A way for people who have little control of their environment to claim their right to the city, even in rental, tight quarters.
- Liska makes layered maps of cities: way to understand “space in its totality” -- physical and the ways we perceive and represent places. Consider urban imaginaries (Edward Soja, *Thirdspace*).
- To access these imaginaries, Liska makes maps, drawing the city in ways that the material and conceptual come forward. Pull the viewer through time, recognizing that space is also social and cultural. What are the uses and lives of “place”?
- In low income neighborhoods, places where housing is public or subsidized, people adapt to take ownership of places. The obvious result is “making do”.
- De Certeau’s *Practice of Everyday Life*: on transverse tactics, that do not obey the “law of the place”. These tactics are distinct because they can only use, manipulate, and divert spaces.
- Making do is about translating. In congruence with tactics, making do is a response to and an artifact of top-down planning in design. It is tactical and not strategic.
- Use of aesthetics that are ubiquitous to the immigrants’ country of origin. Making do overrides the constraints of specific building styles. “Establishes plurality and creativity.” Places values of invention and adaptation.
- Making do as a form of bricolage that challenges the binary of old and new. Third condition with recognizable origins and qualities.
- Conclusion: Making do is a concept related to democratic responses, unbalanced power structures in the lives of underserved urban populations. Ways to claim space, counternarratives.
- Place is process. Making do helps to shape the layers of that process.

Andrian Deonancă

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
- WHAT kinds of work do these people do?
- HOW do they do it?

Context

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- “A story of depressing filth”. Talking about dirt in the life and labor of Romain rail depot.
 - Repair as “dirty work”.
 - Pride in dirtiness: ruggedness and masculinity.
 - Interlocutors spoke about their jobs with a pervasive sense of disgust and poor working conditions.
 - Filth = embodied abjection. Pervasive sense of demoralization under neoliberal capitalism. Desire for state care and belonging.
 - Cinderilization: “Cinderella of the romanian economy” after being a railroader being a reason of pride. Current average speed of trains: 27 mph. A former princess turns into a squalid thing.



- Breaking of a monolithic system -- company becomes more and more disembedded from the state and becomes institutionally splintered.
- Locomotive repair, funded in 2001, as a result of significant splintering. Technicians there was down to 12 members from 40 with increasingly more difficult tasks. Working conditions rendered them unable to fulfil the work, and filth is at the core of these issues.
- Pragmatics of dirt: dirt management is crucial to keep engines running, but now can only do it when required. Dirt appears as material signs to assess the nature of decaying parts, such as assessing an oil spill to understand where the failure may have occurred.
- Living with dirtiness--class and body: hierarchical distinction. That new engineers can afford to wear white sneakers without fear of dirt is shocking to workers, a symbol of decaying hierarchy or how progress through the ranks should go.
- Crises of rail system has direct link to how workers understand the quality of themselves as laborers and the quality of their citizenship.

David Ballard

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
- WHAT kinds of work do these people do?
- HOW do they do it?

Context

- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
 - What recommendations or conclusions did the speaker/s offer?
 - What significant connections do track chair, audience, and/or speakers make to other presentations at MIII, or to other issues/articles/media outside of MIII?
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- Maintaining while improving on the fly
 - Setting: domestic air traffic control system of the USA, operated and (safety) regulated by the Federal Aviation Administration. Self-regulation is a rare arrangement.
 - Commercial aviation activity is growing and becoming increasingly concentrated at larger airports.
 - Air traffic controlling: ground control and airport towers manage ground taxiing and getting up/down; departure and approach control, manage climb and descent into and out of en route system; en route control, flow control sequences flights further and further from the destination.
 - What is being maintained: a Communications/Navigation/Surveillance system. Ability of the system to smoothly accommodate growing demand and traffic is maintained by planning and innovation.
 - Number of operations grows if system works well. Ironic: people feel that they are promised better functioning system, but really it's just more people in the system.
 - Maintainers: ground technicians and engineers that maintain ground facilities and towers, 11000 members. Controllers maintain the functioning of the system in real time (15000 members).
 - Planners, technicians and analysts develop technologies and procedures that permit today's system and capacity to remain workable in the future. Key: procedures are as important as technologies.
 - How/where do we distinguish maintaining from innovating in air traffic control?



James Longhurst

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
- WHAT kinds of work do these people do?
- HOW do they do it?

Context

- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
- What recommendations or conclusions did the speaker/s offer?
- What significant connections do track chair, audience, and/or speakers make to other presentations at MIII, or to other issues/articles/media outside of MIII?
- Meter Maids are Maintainers--project in early stages.
- James' book: "Bike Battles: A history of Sharing the American Road", streets as a commons that can be overused if not managed. Understand path dependency, decisions of the past constraining our available choices.
- Our battles are way out of proportion: the debate is much greater than lines on the street.
- Political fight: **Parking**. The most "menial" of police tasks. Separate workforce. Tasked with maintenance, an unending, day-by-day regulation of a critical system that, if not managed, will be overused, blocking all other uses of roads. Still despised and hated by the public, and at the bottom of an internal status hierarchy in the police.
- Pop culture reflects this history that as US cities developed a parking enforcement agency were starting with a clean slate and could have created many different structures.
- In the early 19th century, "parking" was illegal and considered too great an expenditure of public resources. This changes in the 1950s when overnight street parking was made legal. Creation of a separate police system to manage this change. Creation of a lowly paid separate workforce.
- Instances of tensions between police officers and the meter maids: meter maids being summoned or arrested for ticketing cops.
- Maid: maintenance and servant connotation. Gendered language and roles, as well as uniforms. "Meterettes" of Inglewood. Also a point of access of women of color to otherwise white police officer.
- Does this matter? Does a history of parking enforcement matter in the present? We look at the public space of cities and alternatives that could take place in parking spots. This status symbol of the meter maids is important in that role. What happens if we think of them as maintainers?
- Care for the individual. The pride and care for community that is captured in metermaids.

Transportation Breakout Session

For Session Notetaker:

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
- WHAT kinds of work do these people do?



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- HOW do they do it?

Context

- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
- What recommendations or conclusions did the speaker/s offer?
- What significant connections do track chair, audience, and/or speakers make to other presentations at MIII, or to other issues/articles/media outside of MIII?

Transport Inequality Panel

(Jessica Ivette Sevilla Ruiz Esparza, Alice Goldfarb, Benjamin Lachelt, Amanda Phillips de Lucas, Heidi Morefield, Alisa Slaughter)

Morefield, Alisa Slaughter, Carole Voulgaris (moderator))

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Alice Goldfarb

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
Alaskans who use/depend on the ferry system known as the Alaska Marine Highway System
State government that funds and maintains the ferry system
- WHAT kinds of work do these people do? NA
- HOW do they do it? NA

Context

- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
- What recommendations or conclusions did the speaker/s offer?
- What significant connections do track chair, audience, and/or speakers make to other presentations at MIII, or to other issues/articles/media outside of MIII?
 - State government budget cuts threatened discontinuation of the Alaska Marine Highway system - a ferry system that connects many coastal communities in the state, many of which are primarily Alaska native communities.
 - Some in Governor Dunlevy's (sp?) administration view the ferry system primarily in terms of cost & have suggested privatization. Meanwhile some communities depend on the ferry system for access to basic needs.

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- Public protest resulted in severe service reduction instead of a full shutdown. 16 communities have no scheduled service through the end of May, others now have minimal service (e.g. weekly), and new change fees have been introduced.
- Goldfarb's paper is focused on how discontinuation would affect communities in the southwest part of coastal Alaska (Homer - Unalaska).
- Alaskans receive an annual dividend from the Alaska permanent fund - decisions about budget cuts weigh cuts to these dividends, an approach that doesn't take into account the uneven impact cuts to the ferry system have on Alaskans. Some Alaskans, for example, can only access the highway system via the ferry system. The dividend checks can't make up for lost access to medical care, educational institutions, or the ability to travel for a variety of other reasons.
- The impact of ending the ferry system was illustrated by a strike this summer. In some communities, food prices doubled. Without a road system or access to air travel/shipping, ferries are a key link for supplies and access in many coastal communities. For this reason, the loss of the ferry system is viewed as a crisis by some.

Amanda Phillips de Lucas

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
 - Largely white, upper-middle class environmental advocates who create green infrastructure in Baltimore.
- WHAT kinds of work do these people do?
 - Develop green infrastructure
- HOW do they do it?
 - Philanthropy; advocacy

Context

- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
 - Assumption that green infrastructure will be beneficial to all, without acknowledging the uneven burdens of maintenance.
 - Baltimore is a divided city, deep racial segregation was created by policy; Donald Trump's remarks about Baltimore resurfaced uncomfortable truths about the results of injustices like redlining and racist policing practices.
 - Social and material systems of segregation are being maintained in the creation of green infrastructure by non-governmental actors. Orgs are failing to create and fund processes for upkeep.
 - Non-profits/environmental orgs have been creating facilities to treat stormwater - but this green infrastructure often fails. "It isn't maintenance that's the problem;" by neglecting to develop and fund systems of maintenance the creators of these structures reinforce or recreate injustice/inequality..



- What recommendations or conclusions did the speaker/s offer?
 - Academics who study green infrastructure need to “more deeply acknowledge how greening is not always and in all contexts a benefit.” Technological determinism underlies the overemphasis on green infrastructure creation.
 - Need to do more than create these physical systems, need to focus more on dismantling the unequal social systems in which such infrastructure are situated.
- What significant connections do track chair, audience, and/or speakers make to other presentations at MIII, or to other issues/articles/media outside of MIII?
 - Question about projects that have maintenance plans. Answer: maintenance plan requirement was recently instituted in Baltimore.
 - Motivation to care for space was often sparked by desire for social cohesion

Heidi Morefield

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
Creators and prospective creators of road infrastructure in Democratic Republic of Congo/
Eastern
 - Congo & across the continent (local governments, and international actors like colonial regimes or today, China).
 - Those who use roads in these contexts: pedestrians, motorbike users, car drivers, etc
- WHAT kinds of work do these people do? NA
- HOW do they do it? NA

Context

- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
 - Africa has the deadliest roads in the world, despite having relatively few vehicles. Number of traffic fatalities is unevenly distributed globally. Per capita vehicle number in Africa are similar to what they were in the US in 1915 (We now have well over 900 vehicles per 1000 people in the US).
 - Roads are and have historically been viewed primarily as a means of economic development, leading to minimal thinking about people’s safety and desired uses for roads (e.g. access to healthcare, education, etc.).
 - Roads have not been prioritized in aid, despite being essential to the aims aid-givers are trying to achieve, like better health. Care of roads enables care of people.
 - More people in Africa are killed in road traffic fatalities than by HIV.
- What recommendations or conclusions did the speaker/s offer?



- Invest in the basics that are fundamental, like better quality roads that take people's needs into consideration (e.g. paved, all-weather roads, Poland has more paved roads than all of Africa). New creations like blood delivering drones are expensive band-aids.
- What significant connections do track chair, audience, and/or speakers make to other presentations at MIII, or to other issues/articles/media outside of MIII?
 - There is no continuity of service among caretakers who are part of foreign aid process. Violence and lack of resources results in a lack of continuity among local caretakers.

Alisa Slaughter, Benjamin Lachelt, and Jessica Ivette Sevilla Ruiz Esparza

Power, Place, and Trees: Urban Maintenance Practices in San Bernardino and Mexicali

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
 - Urban greening projects and their organization and maintenance by citizen groups
- WHAT kinds of work do these people do?
- HOW do they do it?

Context

- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
 - Citizen-led organization of community projects, sometimes in response to neglect of areas by government; resources for maintenance are unevenly distributed
 - Ecological improvements need to be balanced with other community needs
- What recommendations or conclusions did the speaker/s offer?
 - Failed projects can demoralize
 - Projects can lead to unintended consequences like gentrification
- What significant connections do track chair, audience, and/or speakers make to other presentations at MIII, or to other issues/articles/media outside of MIII?
 - Those with public sector maintenance jobs are often those who carry key knowledge and connections to the community, but are often not valued.
 - Create funding and other incentives for community members to do the work of maintenance

Maintenance and Smart Cities

(Pamela Robinson, Kevin Rogan, Alexandra Crosby, Carole Voulgaris)

Notetaker: Raquel Velho

Alexandra Crosby



Can smart cities also be slow and small? Using permaculture principles to maintain space, knowledge, and neighborhood (in Sydney, on Gadigal Land).

- Expanding definition of design at the University of Technology Sydney, to include discussions of maintenance and repair.
- Focus for talk: *Frontyard* project -- an example of permaculture and smart cities.
- What is *Frontyard*? Citizen air quality monitor and open source cataloguing system. In indigenous Gadigal land. Owned by local government, leased on a 6-month basis.
 - Location of many urban renewal projects, mix of urban and residential.
 - Tensions of proximity to city and gentrification that is drive through financialized property development.
 - Organization is named for its wild front yard. 1950s building with workshop room in need of a lot of maintenance, with residency spaces and a library, community garden and kitchen.
 - Uses and maintains many digital technologies to connect to communities and sister-spaces, such as those located in countries with diverse infrastructure contexts.
 - Maintained by *Janitors*: a group organized within this property. Property as a space for knowledge share. Reference to everyday work of caretaking and repair in the project. Articulation of different kinds of labor, such as cleaning, and how they are differently valued. Cleaning becomes a performance--integrated into a monthly open house.
 - Project eg: "In Kind", non-cash project.
- Permaculture: a creative design process that is based on ethics and design principles. c.f. *Permaculture, a Practical Guide for a Sustainable Future* (Bill Mollison). "Back to the land" movement. At *Frontyard*, this gets shifted into cities and contemporary conceptualizations of local and global practices.
 - *Frontyard* sees permaculture as a way of thinking about systems.
 - c.f. Australian group, *Milkwood*.
- Air quality monitors: objects and questions in the residency rooms of *Frontyard*, including a DIY air pollution monitor. Response to a \$45 million roadway project through the city of roadway.
 - Components and design based on OK Lab in Stuttgart (Open Knowledge Foundation).
 - Project is co-run by a service designer, managed by an environmental chemist. Interest in using this object to bring together residents, journalists and designers. Data collected can tell a story about this roadway project.
 - Linked to permaculture principle: "Integrate, don't segregate." What happens if we think about data in similar ways?



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- SLIMS: Open-Source Library Management System, developed in Indonesia. Frontyard has a relationship with a sister-space library in Indonesia—tiny libraries but their relationship is important because of their goals.
 - Based on the idea to use this cataloguing system while contributing to a project across the border in a non-English language context.
 - Advantage: one of the most translated systems. Not English-centric.
 - Permaculture principle: “Using the edge, valuing the marginal.”
 - Decisions about what technologies to use but more importantly, where to contribute to. How can we decolonize technology?
- Maintenance builds relationships. With these software systems, we can ask with whom do we want to do this collective maintenance and what futures do we want to build towards?
- Use of value and diversity. Small solutions.
- Reclaiming the idea of a smart city. Connecting through technologies. Small Internet of Things. Local applications of global ideas, not universalizing, ask who is involved.

Ali Crosby:

Front yard <http://frontyardprojects.org> and wiki https://wiki.frontyardprojects.org/everything/Main_Page
mix of industrial zoning and residential
(http://www.urbanculturalpolicy.com/wp-content/uploads/2017/08/Made_in_Marrickville_DP1701042_55-201702.pdf)

gentrification driven by financialized property development

the place is known for its wild front yard

two creative residency spaces

library

kitchen

organizers call themselves “janitors” - space becomes an important and thus they called themselves janitors to address maintenance work as part of the process. Instead of getting a cleaner, cleaning becomes a performance. The open house is held while people are cleaning.

Permaculture: the work is guided by permaculture principles. Comes out of Australia in the 1970s as part of the counterculture movement. IT is a set of principles were part of the back to the land movement. But frontyard wants to shift that into an urban space. Not as an escape from the mainstream but as critical remove

Mollison - Permaculture

Milkwood permaculture group

air quality monitors project:

objects, questions, and movements in residence

one object is a diy air pollution monitor in response to the construction of a new highway.

Pamela Robinson

State of Good Repair: Does it have a future in the smart city?

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- Background: Professional planner.
- “State of good repair”: mindset of how infrastructure budgets are managed.
- C.f. Grame Kennedy, “Everyone left” (when happens when innovators move on).
@Hexagraeme (Twitter).
- What is the state of good repair: for infrastructure to be able to perform what it is meant to do. Gained traction in Toronto with internal transit commissioner after a tragic accident.
- Quayside project in Toronto: Sidewalk Labs agreement with Toronto government to redevelop Toronto’s waterfront.
 - How does State of Good Repair (SGR) manifests in this project?
 - “Toronto Tomorrow” -- draft for what is going to happen in the project.
- Three real things from the Toronto Tomorrow draft plan:
 - Mass Timber: Build structures out of wood rather than other materials. Interest in finding new ways of using wood to built more sustainably.
 - Use of different kind of building project, assemble close to where it’s being built, and assembly by robots.
 - Wood exposed and resanded every 3-5 years. But seem unsure as to how this is going to be maintained.
 - Maybe cheaper to build with wood (lower capital costs) but maintenance cost TBD.
 - Public Realm strategy: invested time in focusing on the public realm, the space between buildings. Modular roads, urban utility poles, and who SGR is for.
 - Hexagonal pavers for dynamic use of the road. Maintenance? When it gets cold, it’s expensive to dig up the roads. This is useful.
 - “Urban USB”, urban utility pole, that allows sensors to be moved in and out of it easily which allows change of sensors faster. “Insert and click system”. Thinking about maintenance of sensor tech.
 - Talk about making the public realm open to all kinds of users. Roads don’t look typical: dynamic paving system makes it flexible. What is SGR: standard of SGR is different for vehicle than it is for autonomic vehicle, for cyclists, robots, scooters, etc.
 - The IDEA district (Innovative Design and Economic Acceleration): public admin body that governs what happens on this site including planning approvals.
 - SGR applied to government systems: this IDEA district is saying that government can’t innovate, so makes an extra-governmental body that has its own body/power. Abandons government as a tech that no longer works. SGR applied to governance?
 - SGR for whom, for what, for what institutions?
- Can we extend SGR to people? If SGR is about maintaining things for people who are already privileged, we need to question it.



- Outcomes may benefit certain people over others.

Pamela Robinson:

Graeme “everyone left”

@hexagraeme

“what is the state of good repair?” notion of state of good repair caught on in Toronto via the transportation department.

Keyside smart city - Alphabet’s sidewalk labs to redevelop a waterfront area.

Toronto Tomorrow - sidewalk labs “a new approach for inclusive growth”

cherry picked 3 things to talk about from the report.

mass timber: push to build structures out of wood rather than steel and concrete. what’s curious about the mass timber project - 6million feet using precut wood. “We’ve left the wood exposed” - they don’t seem to be thinking through maintenance costs.

Public realm strategy: that’s the space between buildings, that may or may not be public. who is the state of good repair for? koala - urban usb?

What do you do with scooters?

Innovative design and economics acceleration district: public administration body. how do we apply state of good repair to governance systems? create extra-governmental body

Can we extend state of good repair to people? Is state of good repair about maintaining things for the privileged?

Tension maintenance and innovation - we need good governance and good civic discourse.

Kevin Rogan

Care Against Growth: Making the ephemeral physical; or, the smart city & political economy

- Same context as previous speaker.
- Focus: smart city and political economy. Ramifications of the hexagonal pavers mentioned by the previous speaker.
- Modulable hexagonal pavers. Part of a system called Dynamic Street. The idea is to fulfill Sidewalks premise that Quayside where vehicles are autonomous and streets are shared.
- Beneath the dynamic street, there’s meant to be utility channels (robots, mainly). Meant to work as a pair to ease transport, uninterrupted service. Supposed to evolve as technology changes.
- Desire to create a streetscape that responds to users needs.
- Digital “reconfigurator” that enables the user to design urban scenarios of their to quickly change the function of the road.
- Dynamic Street proposes that the entire hardscape be transformed into a fluid chessboard. Curbs “go away”. Parking spaces and pedestrian areas will be identified by color changing lights with sensors and signage. Pavers are also meant to have heating foils when it snows...





- Where did this come from? Comes from a paper by French transit authority: IFSTTAR. “Removable Urban Pavements” (RUP).
- Significant differences between the RUP and the Dynamic Street. This system is intended to address mobility, spatiality, governance, etc. So from a single paver, there’s a landslide of repercussions, including Sidewalks’ own “dim” view of humanity.
- Dynamic Street contains technological and political goals. “Would require changes to existing regulations”. Proposal of an urban innovation which in order to enact would require “a minor restructuring of the state”.
- Lack of concern of the physical realities of their own proposals (Sidewalks)? Doesn’t take into consideration that the current design, as they are, you cannot actually replace a SINGLE hexagon due to its key design. There is no evidence that Sidewalks is actually addressing this at all!
- Enter political economy: Maintenance, in this Sidewalks vision, is simply logistics, undertaken by interchangeable workers. Capital seeks to make labor invisible. Invisibility and the removal of humanity of people who work makes us think that there is no human cost. We have the city as an organism and a machine, intensification of the logistical mindset of already logistical capitalist system.
- “If work cannot be done by computers, humans must become like computers.”
- How to combat this mentality? Care can be understood as a way to move against the automation of labor. Acute representation of labor as care is domestic care. Care as a social activity, devalued emotional labor (Maria Puig della Bellacasa).
- But care is identifiable in both production and reproduction. Care is undervalued and invaluable, digs below the division of labor, and becomes a social practice in active labor that exists apart from capital per-se. It’s a moment in work that cannot be assigned a value.
- Sidewalks Toronto thirst for technological growth can be countered by care: it cannot be bought, does not respond to logistics.
- In the initial RUP report, the research team realized that the substrate underneath it is more important than the paver itself. It became the most innovative bit of the project. When Sidewalk adopted this, they left this bit out.

Kevin Rogan:

In Sidewalk labs, technological lodestar and discursive blackhole.

every step in the process has been under increasing scrutiny

Looking at the paver

technocratic preoccupations of the entire project

a lot of proposed technologies are being displayed to get people use to them

“streets are never dug up”

open access utility channels

dynamic street and utility channels are supposed to ease and speed utility work

but Kevin sees a higher goal - this isn’t just about maintenance it’s about easing innovation and change



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“digital reconfigurator”

curbs are going away - heating coils that melt snow

Where do these come from

? from the French transit authority: removable urban pavement.

Kevin then pulls out and holds that street technology as an example of the whole - sidewalk will ask for being defined out of the cities road maintenance standards.

Goes back to Marx who says capital tries to make workers invisible.

City as organism and as a machine.

sees humans as robots

workers must become like computers

sidewalk looks at labor through the perspective of logistics

what do we do to combat that?

turns to care and labor movements

sidewalk rushes to technology but care doesn't fit into this picture.

Mattern:

Carole Voulgaris

Autonomous Vehicle (AV): Maintaining Inequality?

- AVs as exciting new technologies that solve ALL OUR PROBLEMS, like traffic congestion. Focus today: question why AVs would do any of this, and what their effects might be and how they might be distributed.
- Traffic is the 4th most commonly cited community problem for urban residents and 3rd most common for suburban residents. Widely recognized that should be addressed.
- Will AVs fix congestion?
- Defining AVs: they are *autonomous*. That's it. Not “they are electrified” or “there is ridesharing”. Solely *their autonomy*.
- Congestion: “wasted time”. Ratio of actual travel time to free flow travel time. Alternatively, ratio of volume to capacity. These two are *roughly* the same thing.
- How to reduce congestion? Increase capacity or reduce volume are the two strategies.
- Would AVs REDUCE traffic congestion? They would reduce frequency of lane closure from collisions, reduce required time gap between vehicles (so increase capacity). They could also allow people of diverse abilities to operate vehicles, reduce time costs of driving (multi-tasking), reduce minimum vehicle occupancy to zero (BUT ALSO increase volume!).
- Basically: increase in volumes would likely outweigh capacity gains. But we don't know yet. So we can't be sure that they will reduce traffic congestion...
- Will AVs FIX traffic congestion?
 - What's wrong with congestion? Many different problems caused by it: wasted time, fuel, unhappiness, but also air pollution, reduced economic growth, greenhouse emissions, etc.

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- AVs likely might fix wasted time, wasted fuel and unhappiness: better fuel usage, multitasking, you might enjoy your experience in your bubble. Make traffic conditions feel “okay” for drivers.
- But the problems that OTHERS experience aren’t addressed. Namely the impacts on pedestrian safety of traffic on the road, greenhouse gas emissions...
- Equity issues therefore become more interesting and problematic. Who are the drivers of AVs likely to be?
 - Places that are more impacted by air pollution are generally places with lower car ownership. Lower income.
 - People who do the most driving live in less dense areas.
 - People currently doing the most driving are not impacted by the external impacts of driving. AVs likely will exacerbate that.
 - Potential solutions?
 - Sharing and pooling. Arguments for shared fleets of taxis, like Ubers, Lyfts. But these two already have that alternative.
 - Like public transit, but without protections for disabled people.
 - Electrification coupled with AVs could solve certain problems, even if the electricity is coming from carbon sources, decouples spatial location of driving from where that pollution is driving.
- Conclusion: AVs would likely increase traffic congestion and exacerbate inequality. But these effects MIGHT be mitigated through electrification and sharing/pooling.

Carole:

self-driving cars:

AVs and the idea that traffic congestion is our biggest problem that AVs will solve congestion is widely recognized as a real problem.

The question is whether AVs by themselves will solve congestion.

ratio of time and volume are linked mathematically

two ways to reduce congestion: increase capacity or reduce volume.

traffic collisions slow down traffic - avs could reduce this.

lots of things put more people on the road: people with disability using cars, multitasking, reduce minimum vehicle occupancy to zero.

would av’s FIX traffic congestion?

Is it possible to make traffic congestion OK? Is it a problem in itself?

problems lumped into two piles: for everyone” air pollution, reduced economic growth, GHGs; for drivers wasted time, twated fuel, unhappiness.

all the benefits go to drivers/users, not everyone else.

Inequality of the benefits

some solutions:

carpooling but this might have impacts on people with disabilities



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electrification - but how to pay for road maintenance under the gasoline tax

pricing - pricing

For Session Notetaker:

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
- WHAT kinds of work do these people do?
- HOW do they do it?

Context

- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
- What recommendations or conclusions did the speaker/s offer?
- What significant connections do track chair, audience, and/or speakers make to other presentations at MIII, or to other issues/articles/media outside of MIII?

Maintaining Public Transport for All: Addressing Bias in Safety and Access (Panel)

(Tabitha Decker, Dara Baldwin, Ron Thompson, Raquel Velho)

Dara Baldwin - dara.baldwin@ncdr.us - Social Media: Personal - Twitter and IG: @njdc07

Questions:

*** What does safety on transit mean to you? Please tell us about the perspective you bring from your work and/or personal experience.**

*** What are some of the omissions or biases in how safety is currently accounted for in our transit systems and in public transit DC in particular?**

- Lack of evacuation protocol for ppl with disabilities
- Police bias against Black men in transit policing
- Criminalization for fare evasion (compare this with what happens if you fail to pay a toll or parking ticket)

*** Is your organization (or another org you follow) engaged in work to improve safety on public transit for marginalized groups?**

- Greater Greater Washington's new effort to engage a representative base of transit riders

*** What do you see as effective ways to develop more inclusive approaches and reduce bias in approaches to safety? What is the role of elected officials? Is diversity of agency staff and leadership important?**

*** What's one thing that DC should be focused on to improve access via the Metro and on buses for marginalized communities?**

- free/affordable transit
- expanded bus frequency and service hours

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* When you think about the way new technologies and new practices, for example autonomous vehicles or the continued rise of e-hail services, might influence safety, what opportunities and threats do you anticipate?

Notes:

Importance of accurate language: marginalized or underserved, not “vulnerable”

Dara Baldwin

Director of National Policy

Center for Disability Rights

Dara Baldwin is the Director of National Policy for the Center for Disability Rights, Inc. (CDR); a not-for-profit, community-based advocacy and service organization for people with all types of disabilities. She is the Campaign Manager for the passage of the Disability Integration Act and has extensive knowledge of the Americans with Disabilities Act of 1990 and other disability laws. Ms. Baldwin worked on 12 bills that passed in Congress and were signed by President Barack Obama. Ms. Baldwin has a BA in Political Science and an MPA from Rutgers University. She works in and is a proud resident of the District who lives in Ward 5.

Ron Thompson

Transportation Equity Organizer

Greater Greater Washington

Ron Thompson is the Transportation Equity Organizer at Greater Greater Washington. He's a lifelong resident of Ward 8 and lives in Anacostia. He is currently pursuing an associate degree in political science, but in his spare time he enjoys spending time playing grand strategy games and finishing half-read books.

Raquel Velho

Assistant Professor

Rensselaer Polytechnic Institute

Raquel Velho is an Assistant Professor in Science and Technology Studies at Rensselaer Polytechnic Institute. Her field of work has been the development of infrastructures, with a focus on infrastructural impact on marginalized communities (and vice-versa), with a strong emphasis on research in transport accessibility for disabled people.

Tabitha Decker

Deputy Executive Director

TransitCenter

Tabitha is Deputy Executive Director of TransitCenter, a foundation that works nationally to improve public transit in ways that make cities more just and sustainable. Tabitha is one of the leaders of the Bus Turnaround Campaign, a coalition effort that has successfully advocated for better bus service in NYC, securing commitments from New York City Transit and Mayor de Blasio to radically improve bus speeds and reliability. Tabitha's advocacy for more equitable transit is underpinned by more than a decade of



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research in cities around the world, including a dissertation about the creation of Dubai's metro and a year-long study of the experiences of women taxi drivers.

For Session Notetaker:

Basic data

- WHO were the maintainers/care workers mentioned in the paper/session?
- WHAT kinds of work do these people do?
- HOW do they do it?

Context

- What elements (time, place, populations, technologies, methodologies) of the paper/session stood out the most?
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Transportation Track Reports Out

WEDNESDAY Report-Out Prompt

Format of reports out:

5 min: reports/provocations

10 min: talk at tables

15 min: open discussion

Reports: Carole and Raquel: there are different transportation sectors to account for, including private and public, community groups. Who should be responsible for maintenance work? The role of placeholders and stopgaps which are not seen as proper solutions but just enough to do enough in terms of maintenance work. Raquel added that transportation is still a nascent topic and the crossover between transportation and other fields, opening interdisciplinary and cross-track questions. Who, for instance, has the time and energy, from a volunteer perspective, to do maintenance work?

Discussions: One table talked about the institutions that came out of the transportation track and the need to get to a middle path between organizations and grassroots efforts. How does this relate to governance and norms and relationship of top down and bottom up efforts? What is transportation in the public v. private sectors, which have different interests to protect. Focus on cities will blur emphasis on rural. Also, many felt that there was overlap with info and software conversations. On smart cities: the role of technology but also disincentives, such as liability once someone sees and reports potholes, e.g. Another table talked about proactive maintenance v. reactive repair. Hillel mentioned that transportation brings up the question of whether “tracks” is right language for maintainers divisions, given inter-relationships that exist. Thinking

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about resiliency v. efficiency/waste in terms of transportation and how that might be reframed to think in terms of care concerns.

Final thoughts: from Raquel: modes of transportation, despite ubiquity, is little discussed. It has not been brought up by political candidates/DNC. More conversation needed.