

DETROIT TRANSECT — ARTISTS' STATEMENT

Detroit — a broken city in rapid flux — has served as our perfect subject, for it has no choice but to bear all its mechanisms to view.

It's a sad truth that the workings of urban reality reveal themselves most clearly when they start breaking down. This is so even in a literal sense: you can peer right into the holes of an abandoned building to see its past and present in stark and transparent cross-section. And when a neighborhood empties, you can observe how quickly nature re-asserts itself in the landscape.

The emerging tools of computational film-making put nothing less than a new form of film within reach.

In *Detroit Transect*, we've aimed to use these tools to forge a method of what we call *optical documentary*. Optical documentary opens our eyes wide to the world as it is, while making us fully aware of how actively our perception *constructs* that world.

Unlike conventional documentarists, we dispense with the approximate matching of visual evidence to extensive verbal explanation (no talking heads or narrators).

Our search is only for those truths that the eye alone can apprehend, leaving other kinds of explorations to more appropriate verbal forms like the essay and the oral history.

Our approach looks back to the origins of cinema, when the mechanisms of representation were left bare. Precinema devices like the zoetrope expose the mechanisms of the illusion of motion at the same moment that it produced it. You can see how a zoetrope casts its spell just by looking at it.

For each film in *Detroit Transect*, as well as for each section of *Spine*, we've devised cinematic mechanisms that similarly expose their workings to the viewer's eye. Without delving into specifics, we can point to four formal principles that unite these mechanisms:

1. *Enumeration and completeness*. Mechanisms run from beginning to end, with little intervention and in pursuit of specific goals, frequently enumerative (to spot all signs of life, all tags of graffiti, all yards reverting to prairie).

2. *Incompleteness*. At the same time, each mechanism acknowledges that it's only a single limited slice of reality, a particular lens on the world; and each points to other mechanisms for other ways to examine the same thing.
3. *Repetition and consistency*. Mechanisms are constructed from repeated elements of the same kind — of repeated motions, of loops, of zooms, of displacements, and others. Likewise, each mechanism sticks to a characteristic way of moving: clockwise; laterally (right to left or left to right); through magnification (far to close); and so on.
4. *Moving image as data*. Digital video is data not merely because you can easily adjust light levels and colors in commercial postproduction software, but because it allows the discovery of new and unexpected structures by data-mining potentially very large sets of footage. To do this in *Detroit Transect*, we established a common coordinate system for every image, historical atlas page, digital map, and wifi signal captured in our extensive survey. We discover our mechanisms in dialogue with this material rather than impose them from without.

Once set in motion, these cinematic mechanisms are fully open to the reality of the moment. Nothing is staged, composed, or re-shot during the capture process; the world is recorded with the particularity of a given mechanism, and whatever is captured becomes our given. It's from these givens that we've built the five densely interconnected 3D films that comprise *Detroit Transect*.

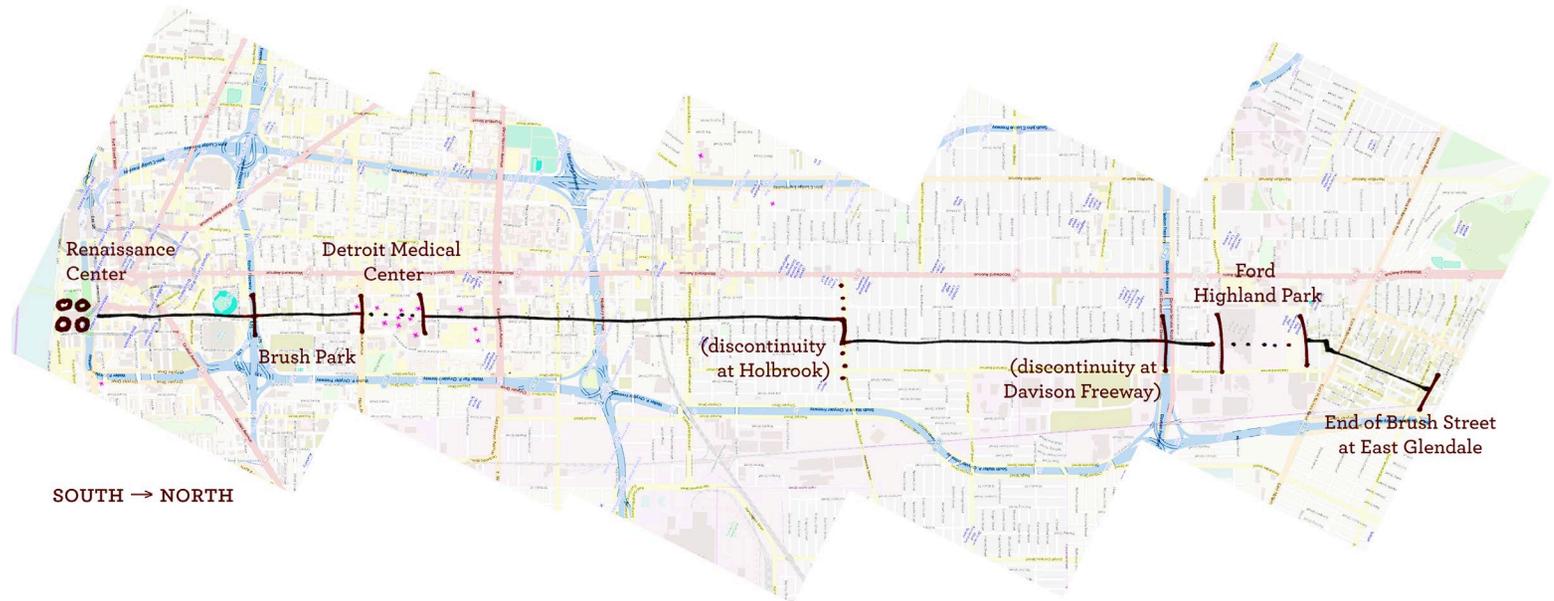
Detroit contradicts any easy generalizations you're tempted to make. It's a city of juxtapositions, with suddenly or continually flourishing areas side by side with dereliction and decay. Detroit also bears witness to human re-invention and re-assertion, the early signs of which can even be seen in the tendrils of graffiti as they interweave with those of resurgent plant life.

If you keep your eyes truly open, Detroit will always keep you honest.

— Marc Downie and Paul Kaiser
30 September 2014

Detroit Transect

Final report for the Knight Foundation
by Marc Downie and Paul Kaiser
30 September 2014

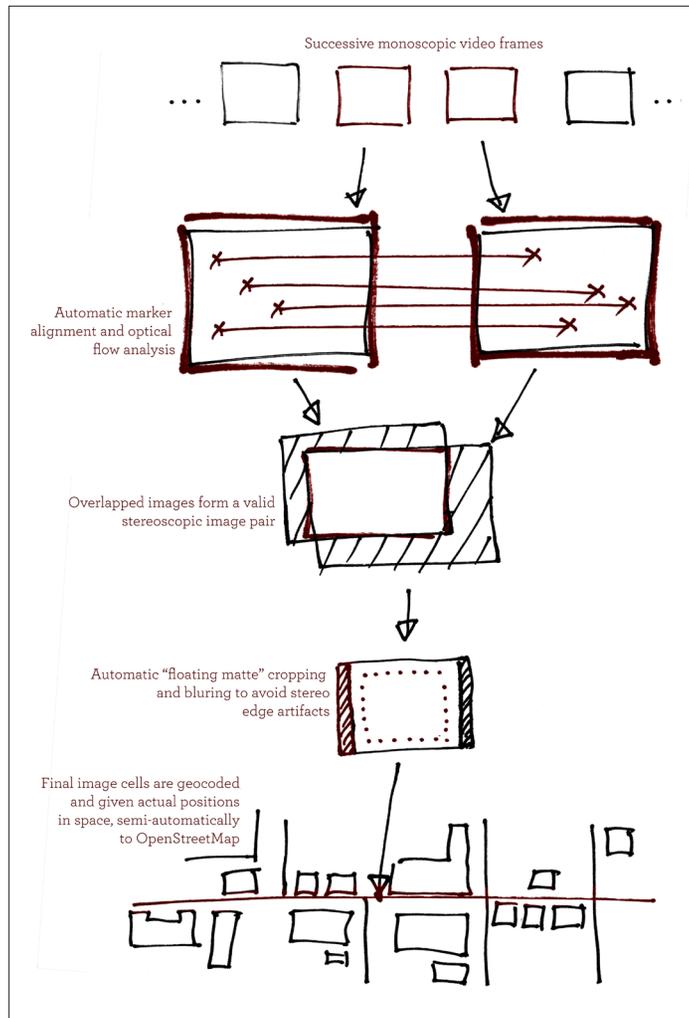


The key zones of the transect line are illustrated and described in our interim report of September 2013, which we incorporate here by reference to avoid redundancy. Our initial computational approaches are also to be found in that report.

SUBJECT — *Detroit Transect* explores the nearly seven mile line traced by Brush Street in Detroit, chosen because it crosses the widest variety of contemporary and historical realities to be found in the city's rapidly changing urban landscape.

The project comprises five interlocking 3D films, with *Spine* forming the main trunk of the work from which the other films then branch.

The films all draw in widely varied ways upon an exhaustive capture of the transect by means of some 78,000 images, each pinpointed precisely to its location in real and in map space.



ANNOTATED GEO-CODED IMAGE CELL (1 OF 2)

APPROACH — Our goal has been to invent a series of new cinematic mechanisms with which to renew viewers' perceptions of urban space and history.

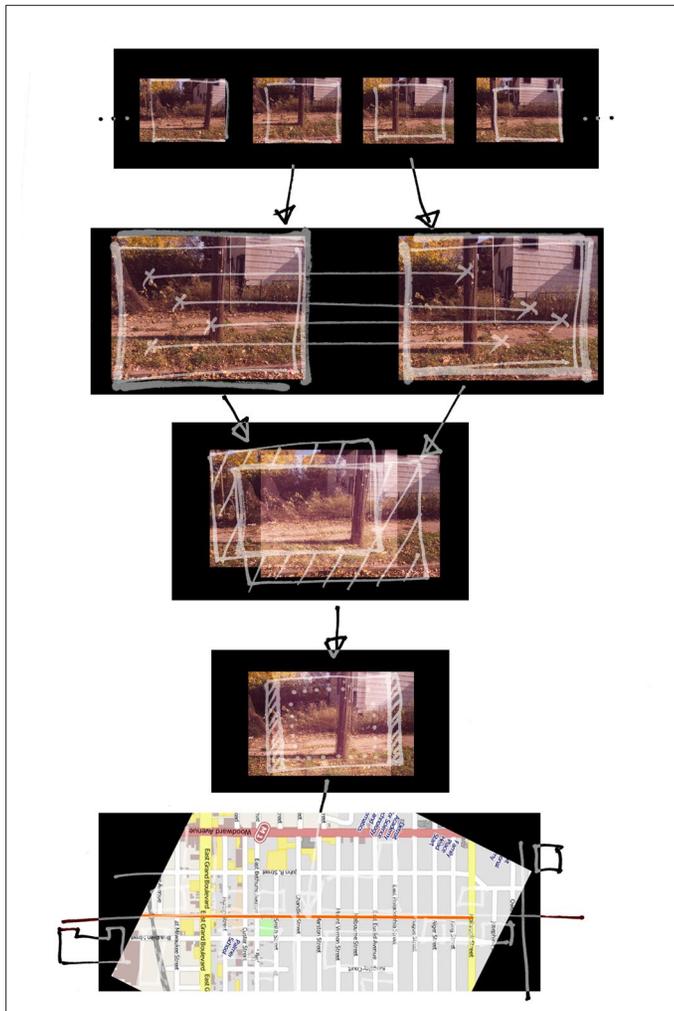
These cinematic mechanisms are rule-based methods of spatial layout and cutting that present the moving image in unique ways made possible in part by computation. Underlying many of the cinematic mechanisms is an essential unit that we gave great thought and preparation to — that of the *ANNOTATED GEO-CODED IMAGE CELL*. This cell can comprise either a single frame or a grouping of successive frames.

For each cell, we know its precise orientation and location in real space (as precisely as on a map). The cell also carries any tagged annotations specific to it (drawn from categories we set up in advance), which permits the simple but revealing device of *tallying*.

Finally, each cell has data access to the cell that precedes and follows it, which (as further explained below) is key both in forming 3D stereo pairs from 2D photographs and in spatializing time.

The image cell confers many advantages, in particular allowing great cleverness about positioning frames in space. Ordinarily a filmmaker will know with any precision only the *time* of an image, not its specific *place*. Since our system insures perfect knowledge of both, we can manipulate the time and space of the moving image in novel but objectively *true* ways.

Moreover, we can do so not only with imagery captured with a camera, but even with the imagery we derive from historical atlases and maps, allowing the coordination and integration of both kinds of picture within a fused visual scrutiny. (*The specific cinematic mechanisms are diagrammed and illustrated in the sections to follow.*)



ANNOTATED GEO-CODED IMAGE CELL (2 OF 2)

STRUCTURE and PRESENTATION — *Detroit Transect* comprises five interlocking 3D films, with *Spine* forming the main trunk of the work from which the other films then branch.

Though we are providing the films in fixed-length form, it's crucial to realize that these digital films can be reshaped, regenerated, and re-rendered far more flexibly than traditional film and video.

Since we believe that *Detroit Transect* will be experienced best in an ongoing spatial installation that allows viewers to freely juxtapose their experiences of its parts, we have been careful to preserve a great degree of flexibility in the individual sections of the films.

For example, we can adjust two cinematic mechanisms so that they match up to each other in projections on facing walls or in ones that meet in a gallery corner.

This is especially true of the main film *Spine*. It's conceivable that for an expansive spatial installation it would be better to juxtapose its ten distinct sections rather than sequence them.

A detailed account of each film (and for *Spine*, each section) follows.

1. **SPINE** — 42 minutes; 10 sections:

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SPINE — 41:00

The film presents repeated visual searches along the full length of the Brush Street transect, moving south to north.

It comprises 10 distinct sections, of which the first is entitled **PRELUDE: EAST SIDE** (3:12).

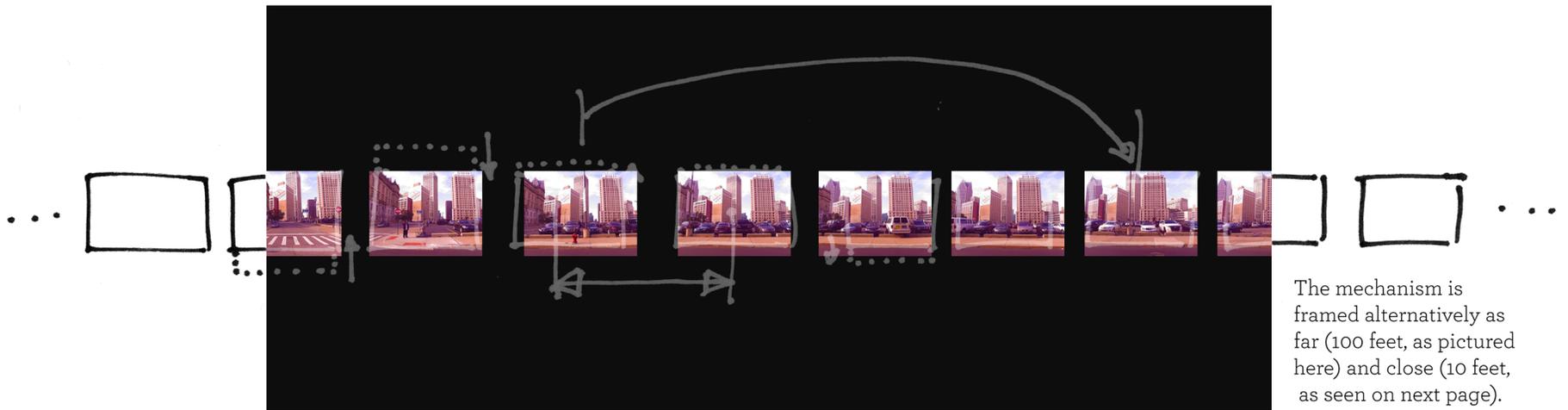
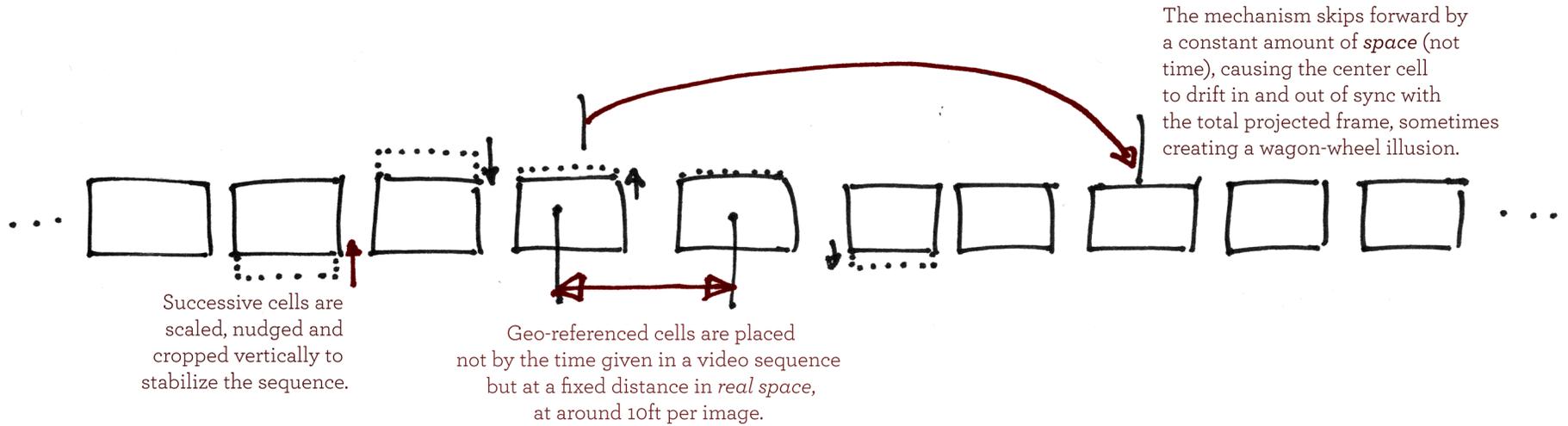
This blazingly fast traversal of the east side of the street plants key features of the transect almost subliminally in the viewer's mind; they all recur in later sections in very different ways.

The film presents itself in strips of frames moving right to left and alternating between far and close views.



RIFLING MECHANISM

(used to generate *Prelude*)



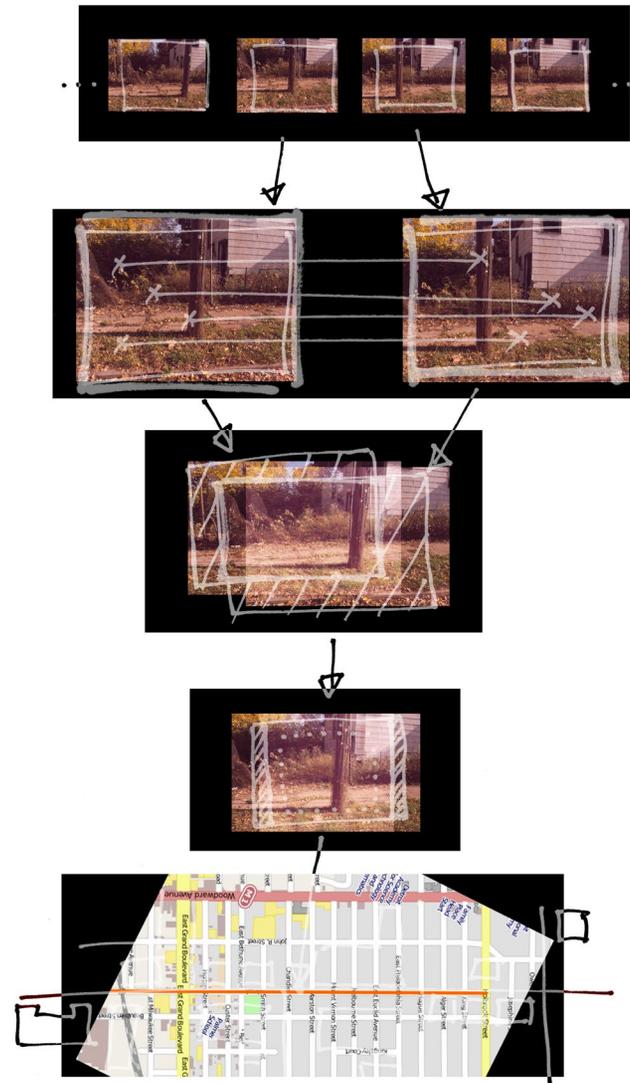
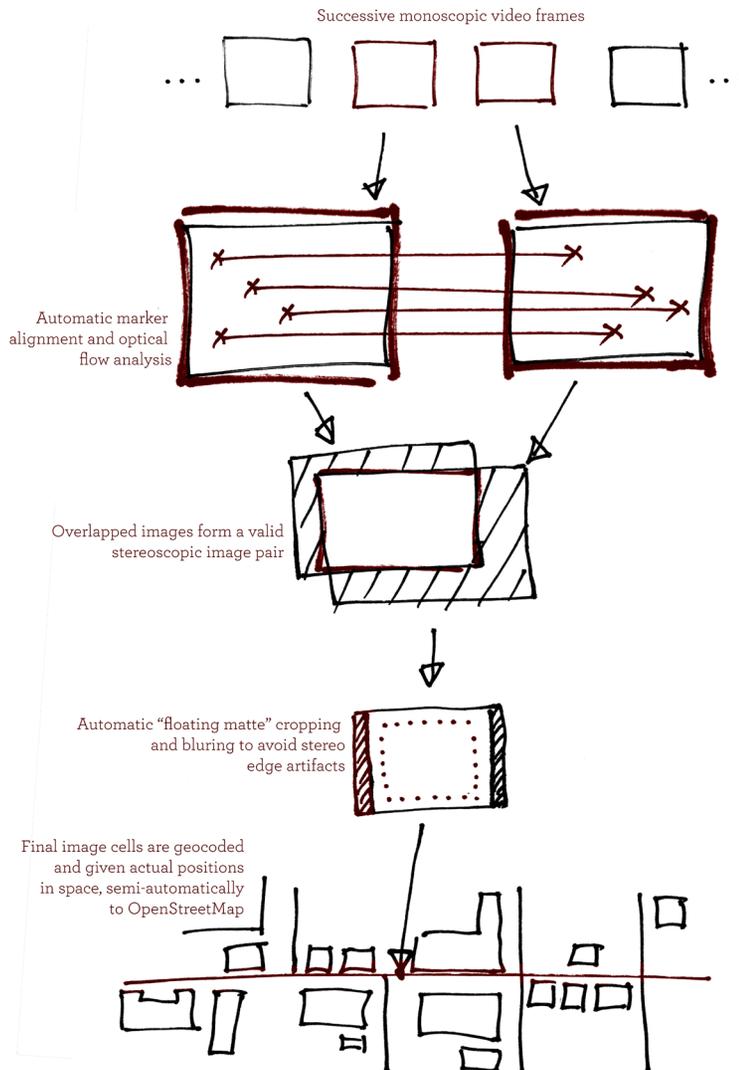
RIFLING MECHANISM:

example of successive close-up frames



STEREOSCOPIC SYNTHESIS:

method for synthesizing stereoscopic
3D sequences from 2D stills





ATLAS: AERIAL — 13:11

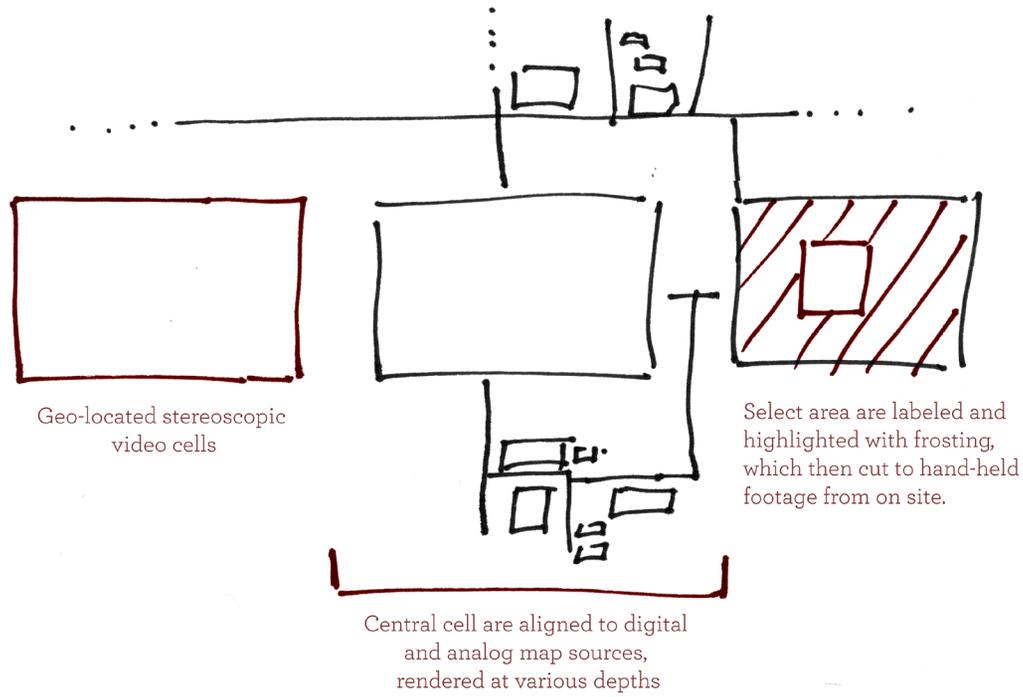
Spine's second section surveys the line mainly from above, highlighting sites that characterize different sectors of the transect. These range from the contemporary (GM's Renaissance Center and the Detroit Hospital Center) to the decaying (Brush Park, the Highland Park Ford Plant).

The cinematic mechanism (diagram on next page) displays simultaneous cells ranged spatially left to right, with right being north. The virtual view shifts closer to or farther from the cells, with corresponding shifts in speed (farther is faster).

Periodically a site is highlighted and a "landing" is effected: we cut to hand-held footage onsite (examples on p 9).



ATLAS MECHANISM
(used to generate *Aerial*)



ATLAS “LANDINGS”

3 out of the 8 hand-held sequences



DOWNTOWN: vacant Wayne County Building from Jacoby Alley



MIDTOWN: diorama in Charles H. Wright Museum of African-American History



NORTH END: vacant lot in residential neighborhood.



FULL PROJECTED IMAGE

ALIGHT: GRAFFITI — 2:48

Moving south to north, all instances of graffiti on both east and west sides of the street are highlighted.

Where individual tags of graffiti are encountered within a single continuous space, the cells jump from one tag to the next; where an appreciable distance separates one tag from another, the initial cell after the jump plays back motion leading up to the tag to show its spatial context.

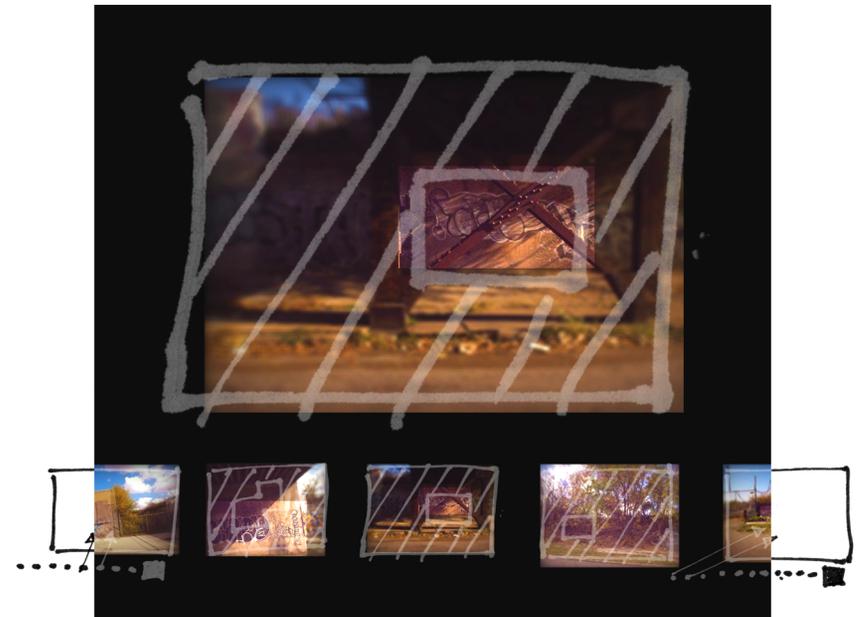
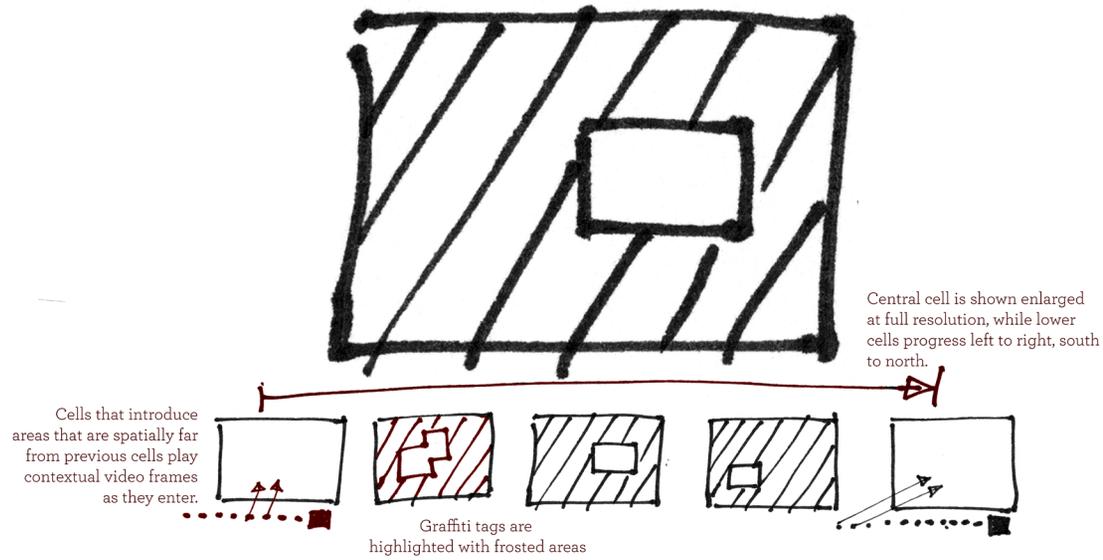


DETAILS



ALIGN MECHANISM

(used to generate *Graffiti*)



CONTACT SHEET: NEIGHBORHOOD WATCH — 1:20

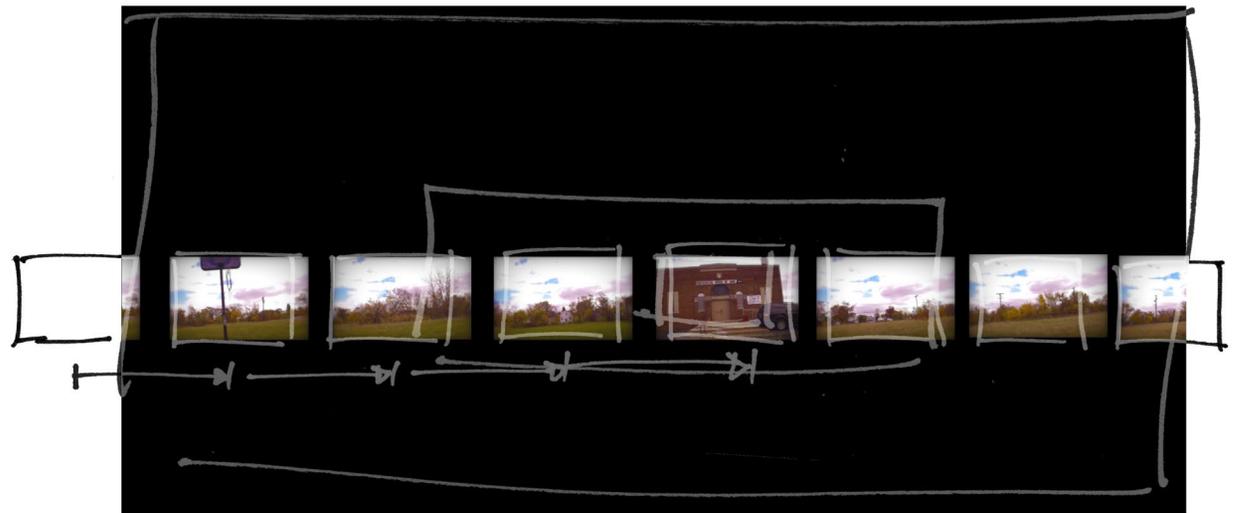
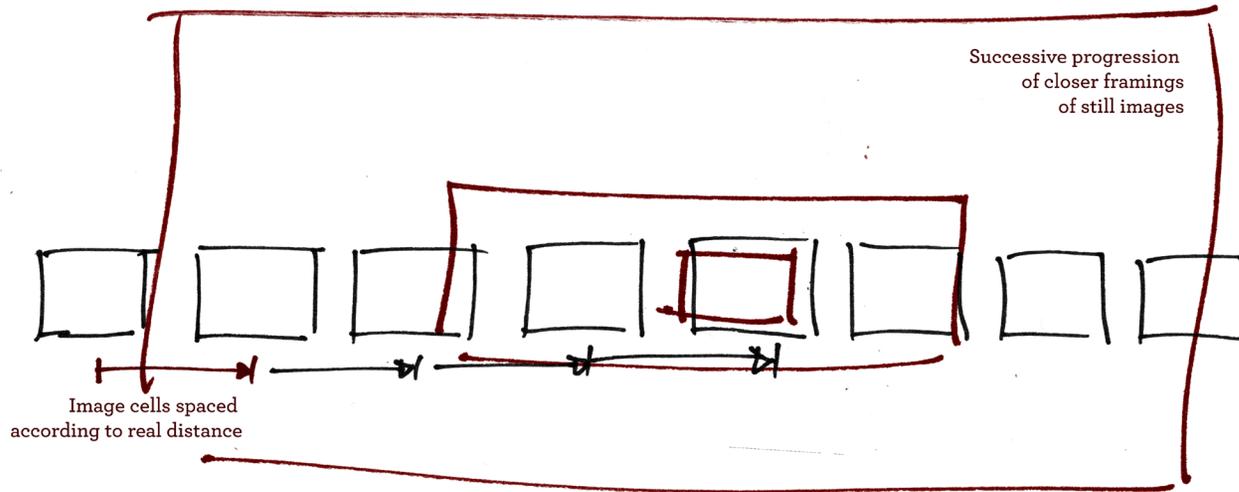
The cells surrounding the 8 instances of neighborhood watch signs are isolated in single stationery strips of stills, with the virtual camera zooming in on the sign positioned in the center of each strip.



STAGES OF THE ZOOMING IN ON ONE STRIP

CONTACT SHEET MECHANISM

(used to generate *Neighborhood Watch* as well as *Churches*)





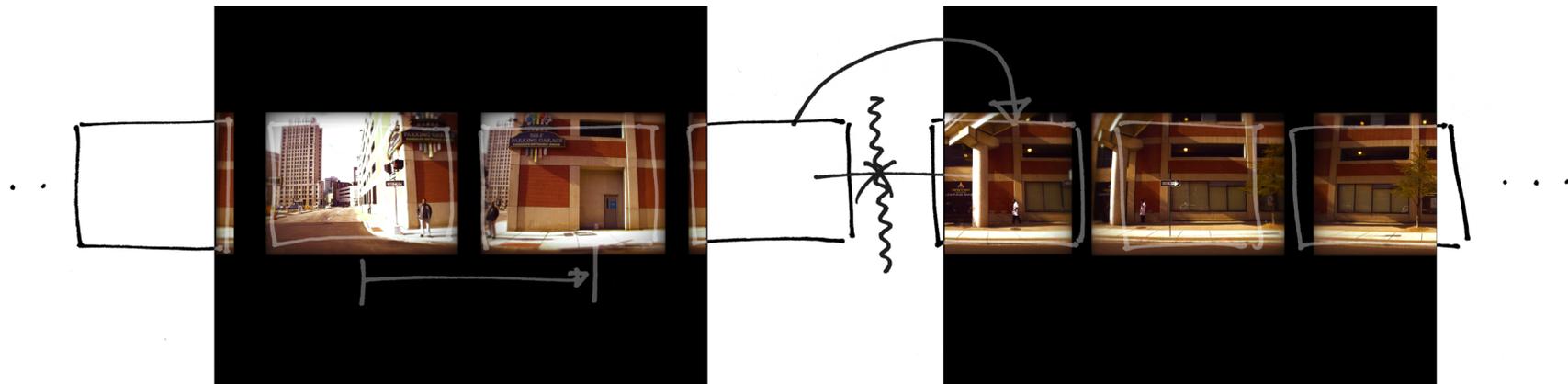
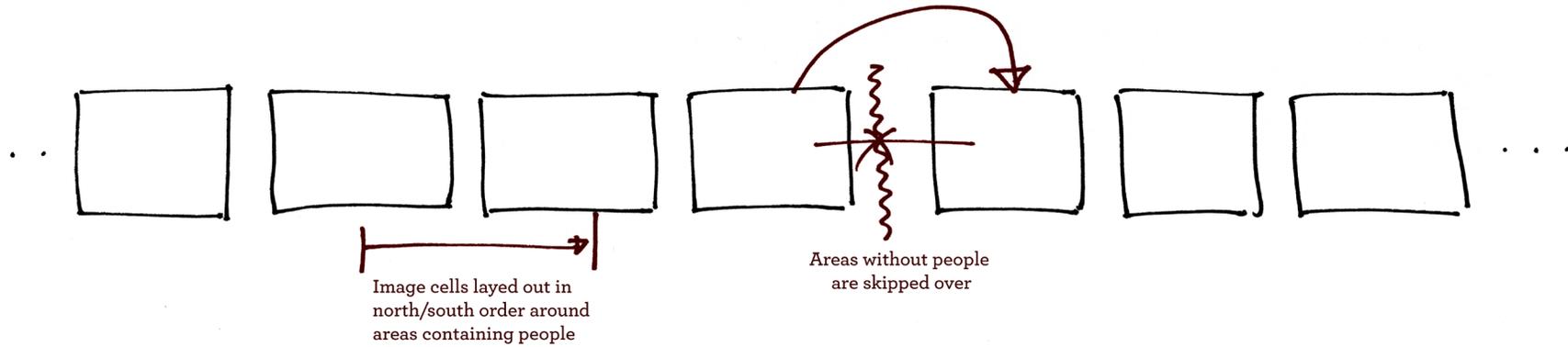
TALLY: SIGNS OF LIFE — 2:13

A rippling search along both east and west sides of the street for all living figures, which are ever-sparsier in the emptying Detroit landscape.



TALLY MECHANISM

(used to generate *Signs of Life*)





FULL PROJECTED IMAGE

GRAZE: ALLEYS — 4:02

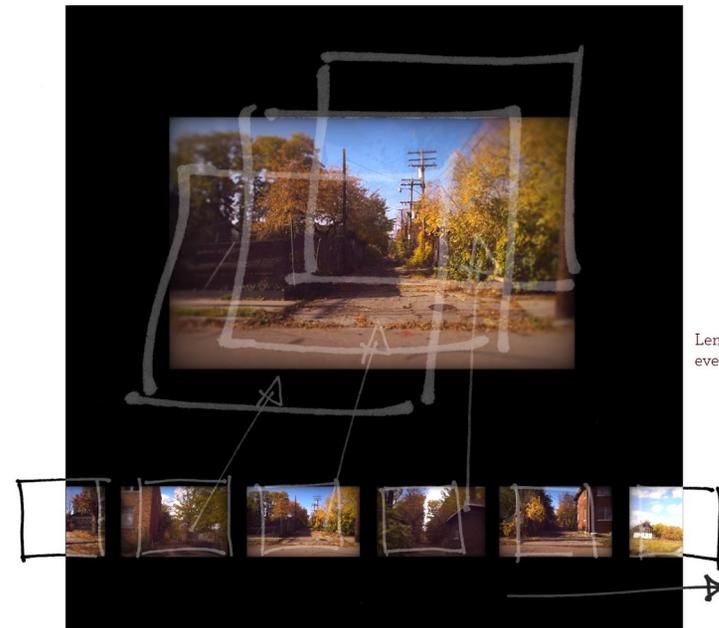
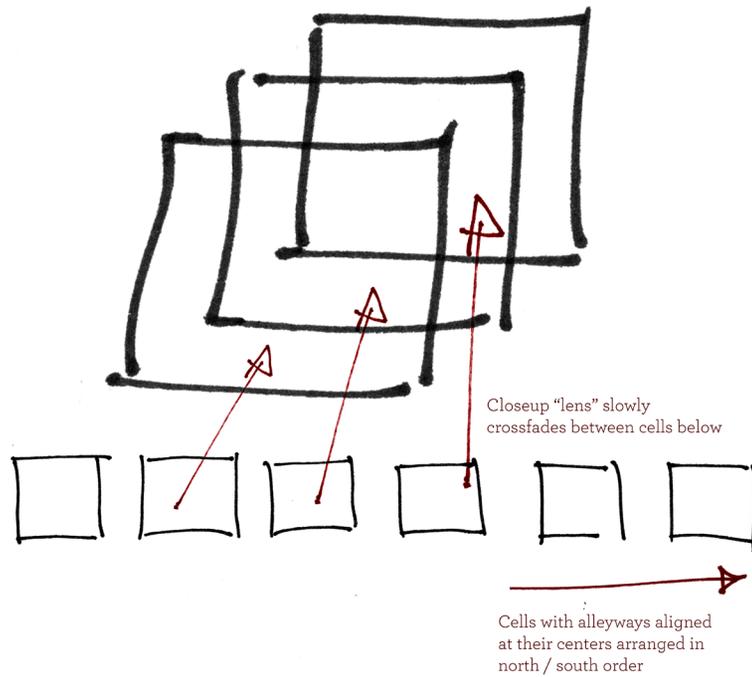
All residential alleys are telescoped together so that they can be presented adjacently. Along the bottom are clear thumbnail images of each alley; each is magnified above its corresponding thumbnail when it reaches the center of the row; the magnified images cross-fade one to the next, with a pause for longer contemplation every tenth one.



DETAILS



GRAZE MECHANISM
(used to generate *Alleys*)

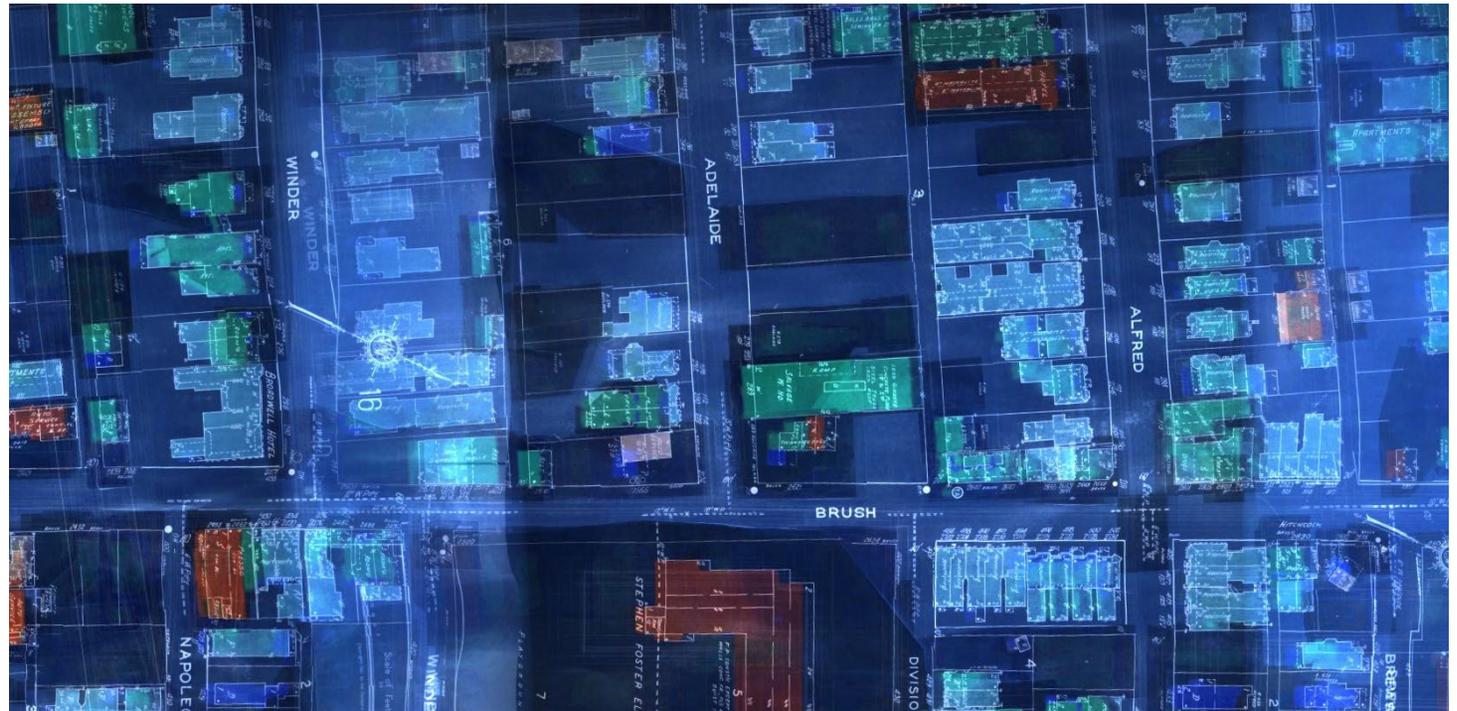




DETAIL OF ZOOMED PALIMPSEST

ATLAS: PALIMPSESTS — 2:56

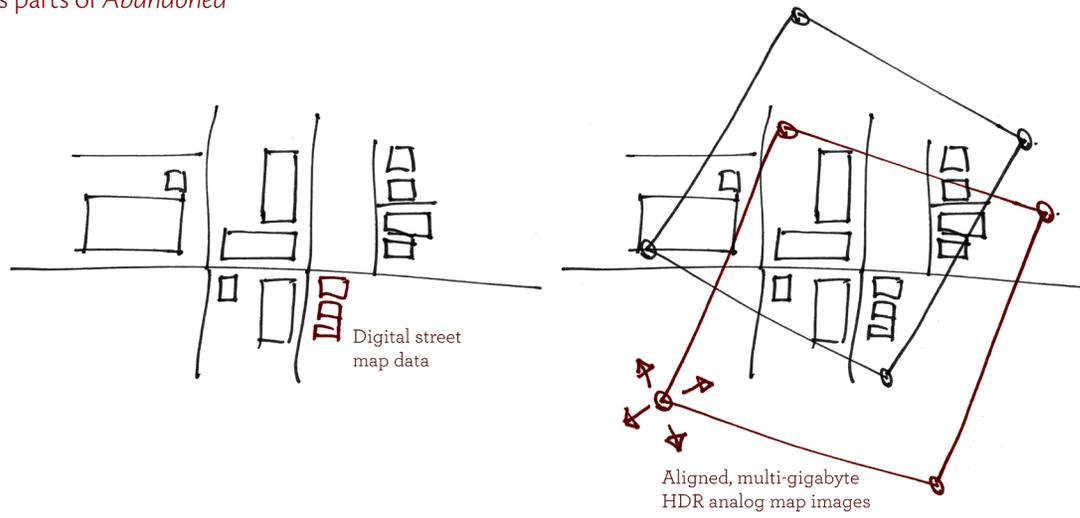
A beautiful artifact of the *analog* age of information is the Sanborn Fire Insurance Atlas, which devotes an oversize page to a color-coded spread covering roughly four city blocks. Updated by subscription for periods long past the publication of a corresponding volume (many dating back to the early 1900s), specified paper cut-outs were pasted over outmoded areas. Digital imaging allows us to peer beneath the layers to discern the rooming houses and mechanics' shops replaced by parking lots, freeways, and ruin.



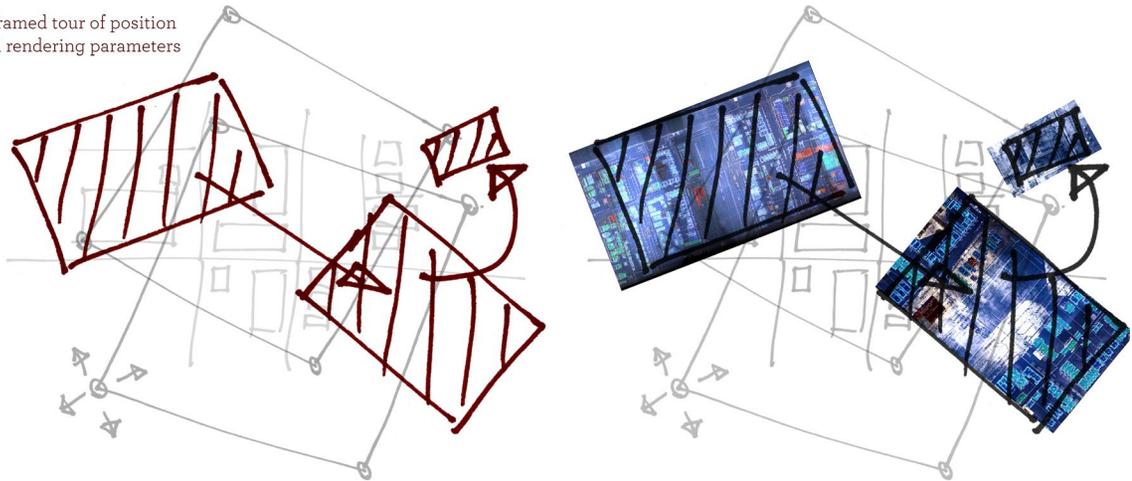
FULL-SCALE ATLAS PAGE

PALIMPSEST MECHANISM

(used to generate *Palimpsests* as well as parts of *Abandoned Schools*)



Keyframed tour of position and rendering parameters





ACCORDIONED: PRAIRIE — 3:11

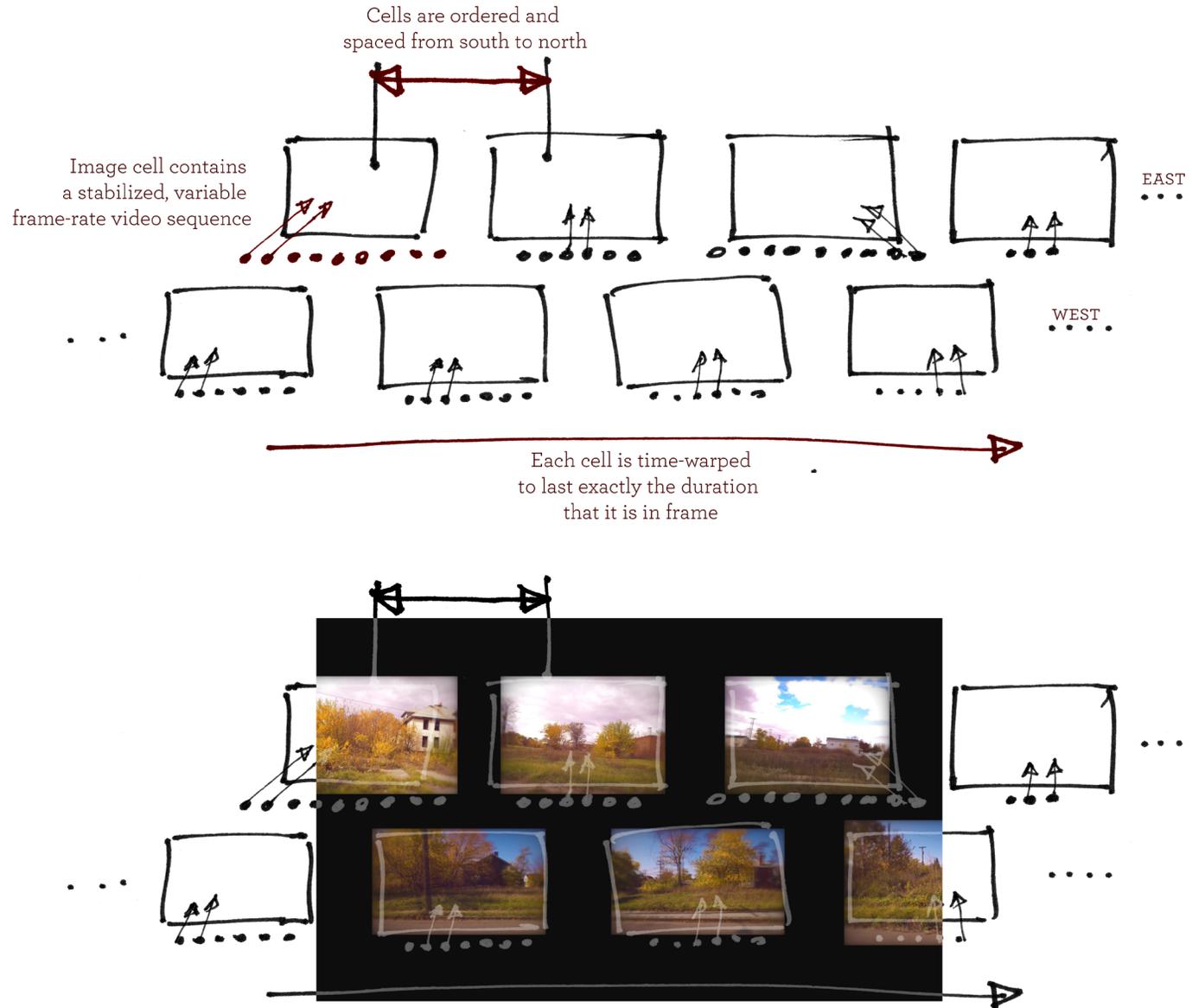
With much of the Detroit landscape reverting to nature, we concatenate all vacant lots to form a vision of the prairie taking over.

We traverse the prairie cells from south to north, with those to east on the top row and those to the west on the bottom. We pass at different speeds over the east and west rows to keep them in sync spatially.



ACCORDION MECHANISM

(used to generate *Prairie*)



CONTACT SHEET: CHURCHES — 1:20

With the same mechanism as for *Neighborhood Watch*, here we zoom in on the four churches to be found on the transect (three active, one abandoned).



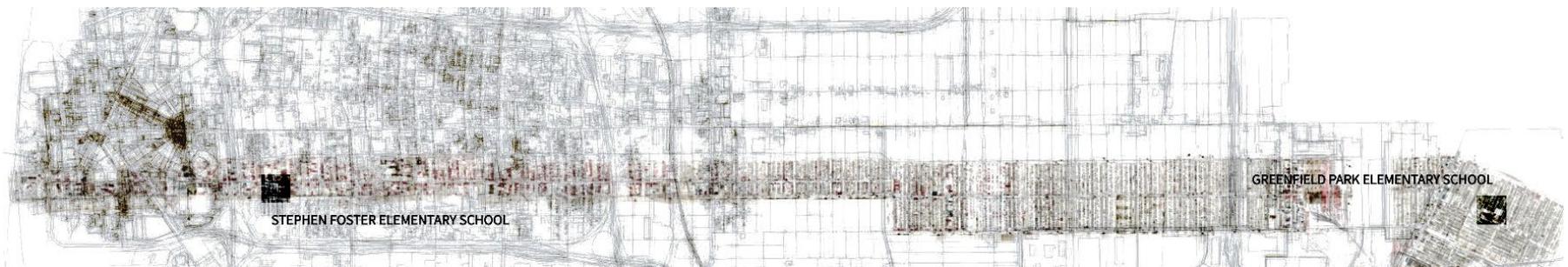
FIRST TWO ROWS ARE FULL IMAGES; THIRD ROW IS A DETAIL



CODA: TWO SCHOOLS — 3:45

The last section of *Spine* is an elegy to two abandoned elementary schools to be found at nearly opposite ends of the transect (see illustration at bottom). The transect spine is seen here complete for the first time, after which we zoom in turn to the Sanborn floorplans of the old schools, which give evidence of the once crowded residential areas they once served, before cutting to hand-held footage of each school in its present condition.

This is the only section in which we present a verbal reading of the sites in the form of superimposed captions summarizing the story of each school and its aftermath. Examples of these captions are to be found on the following page, with further examples of the hand-held footage following that.

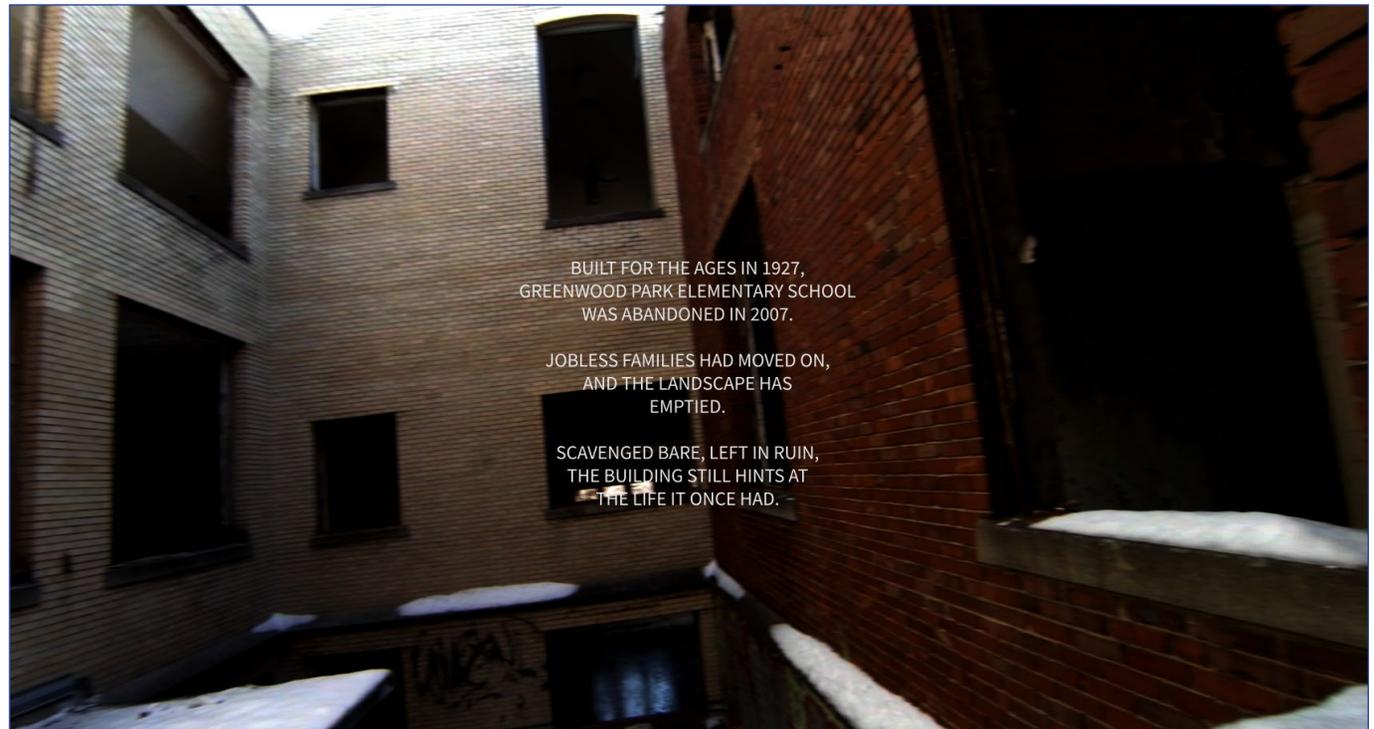


MAP IMAGE INVERTED FOR LEGIBILITY ON THE PAGE

SCHOOLS CAPTIONING



HAZMAT TEAMS LATER CAME TO
DETECT AND REMOVE HAZARDOUS WASTES.



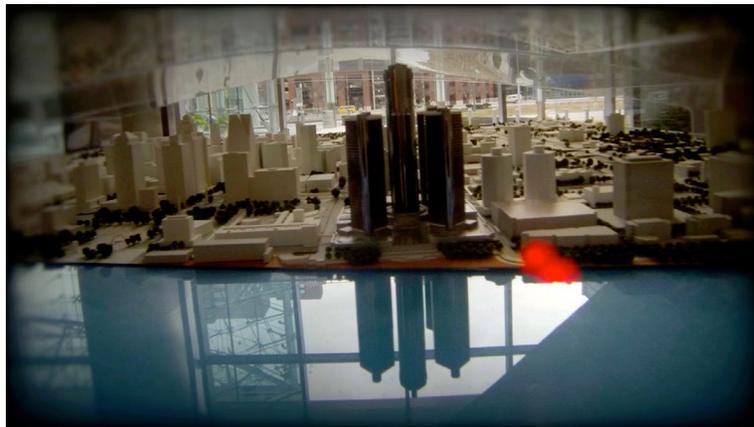
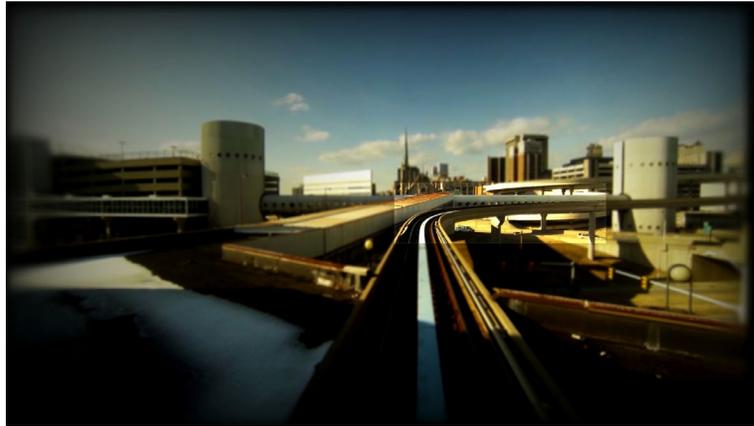
BUILT FOR THE AGES IN 1927,
GREENWOOD PARK ELEMENTARY SCHOOL
WAS ABANDONED IN 2007.

JOBLESS FAMILIES HAD MOVED ON,
AND THE LANDSCAPE HAS
EMPTIED.

SCAVENGED BARE, LEFT IN RUIN,
THE BUILDING STILL HINTS AT
THE LIFE IT ONCE HAD.

SCHOOL INTERIORS





FULL FRAMES

CIRCLING — 15:13

Circling draws principally upon footage shot from the Detroit's PeopleMover monorail, from a helicopter survey of downtown, from a car in the Detroit-Windsor Tunnel, and from hand-held cameras in the Renaissance Center and in various pedestrian bridges and sidewalks.

The film evokes the circle as a one-time emblem of modernity — a circularity that now registers America's failed industrial dream.

Its cutting pattern also forms a kind of circular chain, the rule being that each shot must show something that can be seen in the next.

Even so, the cuts can be striking dislocations, for a curve in the monorail can suddenly be seen from a distant helicopter view or spotted in an examination of an outdated scale model of what the downtown was supposed to have become in its intended renaissance.

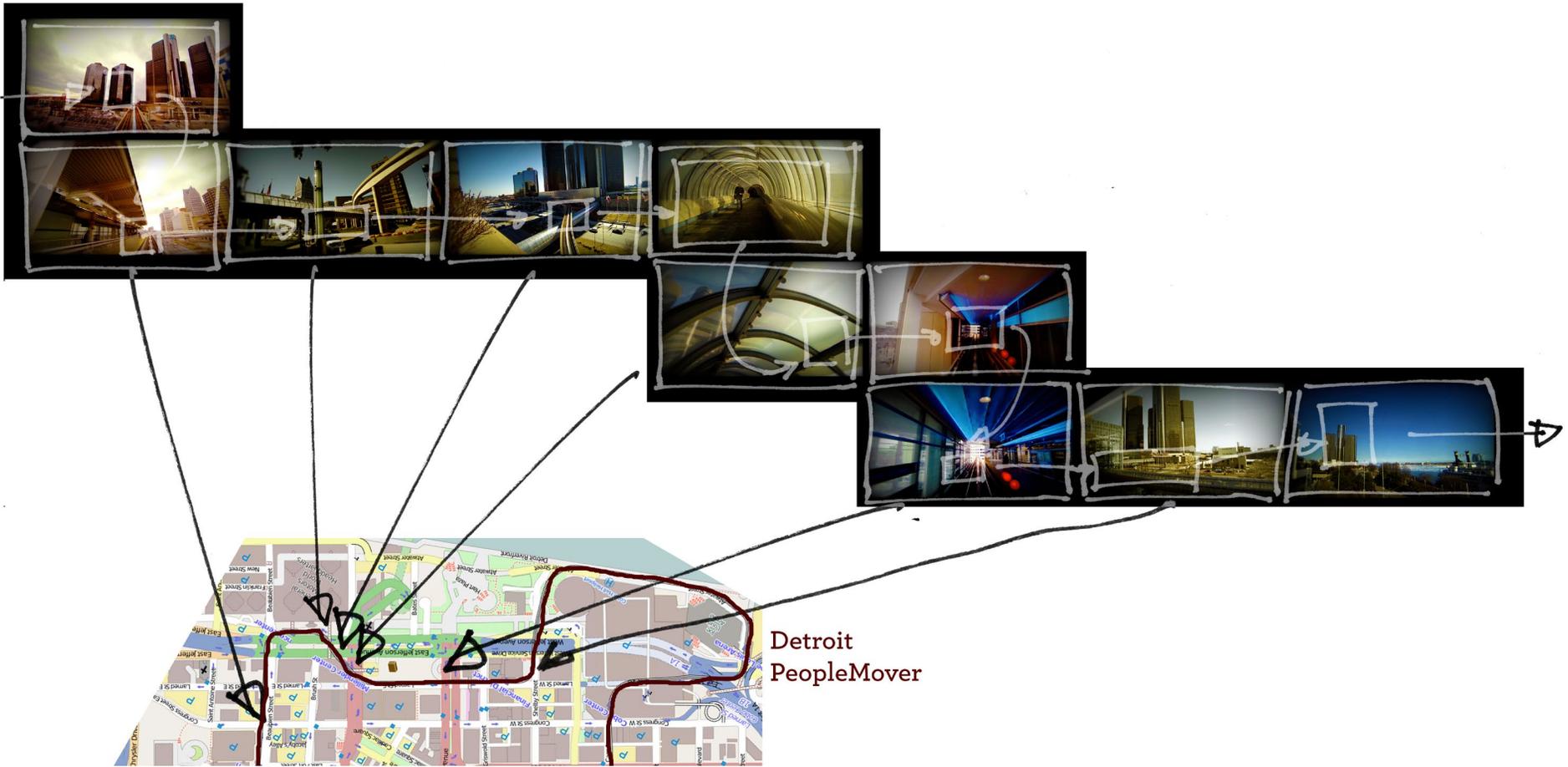
| 28



DETAIL

THE LOGIC OF SPATIAL EDITING

in *Circling*





FULL FRAMES — A MAN'S FACE + HAT ; BRANCHES BEHIND WIRE FENCE

GLIMPSESING — 21:16

Glimpsing begins with a succinct description of its method: *Telephoto lens, shallow depth of field, the reconstruction of 3D space from successive frames where possible.*

Captured from the side of a moving car, the imagery is in extreme close-up that shifts constantly between recognition and abstraction. The movement is fast, broken often but irregularly with short bits of black to reset the eyes.

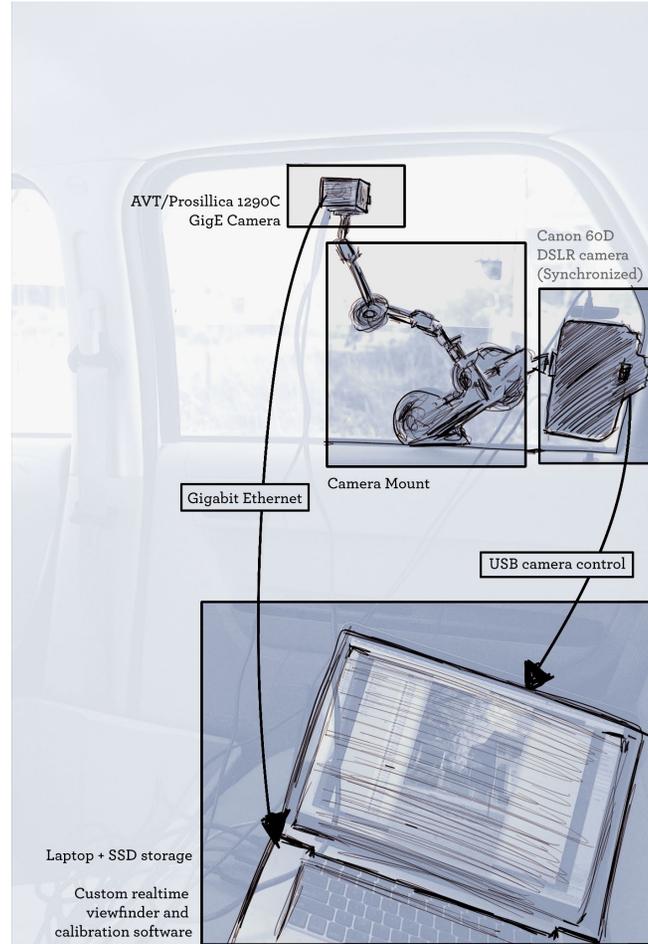
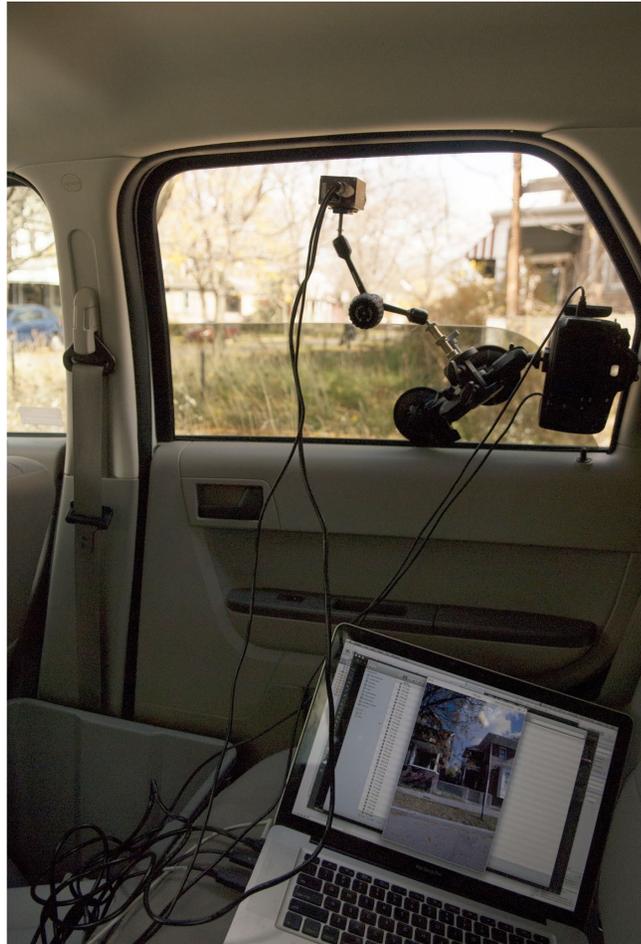
Every so often, a sequence of frames will repeat, this time in slower motion and cast into a 3D space synthesized from successive frames. Bits of a window, of a sign, of a branch, or of a fence will suddenly stand out in space.

Progressing from downtown Detroit out into the emptying residential districts, there is a corresponding movement from built structures to nature — though nature becomes intertwined with the graffiti also flourished in the wild.



DETAIL OF SIGN + BRICK WALL

CAPTURE SET-UP
for *Glimpsing*



For *Glimpsing* we shunned cameras typically used in digital film and opted instead to build our technical processes on scientific, machine-vision cameras. Though designed for engineering or industrial use, these cameras can be re-purposed as an alternative path for cinematic capture. Small, lightweight, and extremely sensitive, they allowed us to capture raw sensor data at a variety of frame rates and exposures.

In *Glimpsing* we attached lenses designed for much larger cameras to create an extreme telephoto capture technique, creating a stream of images that seems to be a microscopic investigation of the urban landscape.



FRAMES FROM DOWNTOWN SEQUENCE — UNDER PEOPLE MOVER, PAST COURTHOUSE, TO STADIUMS

REACHING — 2:06:00

Reaching works as an extended structural film — viewers soon get exactly how it will work over its more than two hour duration, yet are continually surprised (and sometimes scarcely believe) what they see.

Its mechanism is simple: staggered footage is distributed across a row of five inset frames, which the virtual camera gradually zooms into until the central image nearly fills the frame — and then resets and repeats the sequence.

The key to its perceptual surprise is that the offset in time between the frames maintains a constant but nonetheless perilous balance between showing a continuity and a fragmentation of space. In particular, spaces and objects sometimes appear to duplicate themselves in impossible sequences, the eye and mind tricked by actual resemblances and duplications in the urban landscape itself. These are not merely of recognizable structure (building, bridge, tree, etc), but even of geometry and color.

As a result, viewers can be held rapt as they watch Brush Street cross all the way from downtown out to its terminus in near-prairie in Highland Park.



DETAIL OF FINAL FRAME IN RESIDENTIAL SEQUENCE



FULL FRAMES — PLAYGROUND; ABANDONED HOUSES

CORNERING — 15:40

Cornering explores the residential neighborhoods of Brush Street. It weaves its way north, rounding the corners of the street and traversing those of the many alleyways passable by car.

Its editing pattern fuses the rounding of one corner into the rounding of the next through a precise matching of speed and framing, a concatenation resembling that of the *Prairie* section of *Spine* — rather than a continuous prairie landscape, *Cornering* conjures up a continuous space of corners, back alleys, and yards.

From time to time, a shot will freeze on a frame, allowing the eye to explore the complexity of the 3D space — it may pause on the glimpse of a gate, of a snarling guard dog, of a sofa abandoned in a vacant but verdant field, of the intact or the abandoned facade of a house.



DETAIL: BACK ALLEY WITH GUARD DOG

TWO CORNERING SEQUENCES



CORNER SEQUENCES



ALLEY SEQUENCES