



Rockstar Games NYC

## Utilities List:

*Utilities that were part of the archive:*

A. 3dsread.exe -- this converts the 3ds files to source code.

*Utilities we do not have, and which have already been created or are in progress:*

- A. Tool to process sprites into game. We had nothing zero for this, and have recreated a new process for this. We haven't tested this a lot, but it seems to function fine at this point.
- B. Tool to import game scripting files. We have reverse engineered the scripts and created a compiler that imports scripts into the game. We are still evaluating what functions that are called in scripts actually exist as functions in the engine code.
- C. Tool to set placement of buildings. We have a method in place now for this. It's a 2d editor, and not perfect, but is functional. We may improve on this process.
- D. Tool to set other level based stuff. Like, car paths, and blocking bits, scripting waypoints. This is adequate at this point.
- E. Tool/process to import the level background tiles into the game. We have code for this, but are currently working on improving the process.

*Utilities that were Nintendo utilities:*

- A. Way to process sounds. We had to rebuild the makefiles for this. We have not checked this extensively yet, though the game does build. We will be replacing this driver with our own in the future.
- B. BMP2agb.exe which was used for the wall textures. We have a makefile for one of the levels, and recreated a makefile for the other 2.



## Technical Risk Assessment:

### *Speed:*

The possibility of the game running too slow, due to too many sprites on screen at one time. That in order to do lots of things on the screen at once, that the game will just bog down. We can reduce the number of cars or simplify levels for speed. We need to find some middle ground between fast enough and complex enough. We are already thinking of alternatives to give the player the experience of a lot of action and traffic through other alternatives than excessive object usage and tracking, in case this presents a problem

### *RAM:*

This is also an issue with improving the vehicles and adding more of them. These take RAM and we do not have an exact number how much RAM is available for expansion, although we are currently safe. We will be keeping track of RAM usage as we make any of these changes.

### *ROM:*

The amount of available cart space is fairly minimal, we have already removed some unused items, but this could become tighter again, depending on any additions to art or sound assets later in the project.

### *Multiplayer bugs:*

Multiplayer functionality over a scrolling map can result in issues of the two linked AGBs being out of sync when a large amount of information is being exchanged. It is for this reason, that we would not use an entire island map, but a section of one. This is also an area where testing feedback is most essential, as well as time consuming.

### *Scripting:*

We are getting much more familiar with the scripting, but are not yet completely up to speed on the engine, and process. We have been able to make some scripting changes, and it is just a matter of trial and error, to see what exists and we are able to use, and what we need to build from scratch. It is because of this that we are planning to make the demo, a minimal amount of missions (maybe only one), but those missions would be all inclusive for the type of scripting functionality that we need throughout the game.

### *Physics:*

In order to improve the feel of the game, it will be necessary to improve some of the physics/collision detection. This has the potential to require more processing time, or introduce some more complexity on the collision detection part of the engine. As well as changing the control configuration, there are some control adjustments that are needed for better feel. The most extreme of these are the steering on the cars. Currently the cars seem to have a pivot point in the center of the vehicle. This has a tendency to give more of a sliding feel to turns, which is very noticeable with the small amount of screen real estate on the AGB. It should be much improved if the pivot point is between the front tires of a vehicle. This will be a try and test process, until it feels right. This is important since driving is a huge part of the game.



### *Random sprite glitching:*

The AGB has limits on the number of sprites that are allowed on a line and on the screen. Probably more than any system GTA has previously been on. It could be a challenge to insure that cars do not line up in a way to cause sprite glitching, or drop out. We are already investigating, how often we will have to “kill” sprites that travel a certain distance off the screen, in order to limit the likeliness of this type of sprite dropout.

### *Weird 3d glitching:*

Getting some of the textures and 3d coordinates to line up correctly can be complicated at times due to round off errors in the fixed point arithmetic. The rendering process is slightly finicky, and we still need to assess exactly what the art limitations are, that the code imposes on the 3d assets.

### *Sound/Music slowdown:*

Normally sound memory is moved to the fast RAM for better speed. It is possible that all of the fast RAM is being used for the 3d processing. If this is the case, it may not be able to be functional using the slower RAM speeds. What this means, is we may need to lower the sample playback rate, or see noticeable overall slowdown. While this will affect the sound quality of the music and effects, it will not be entirely detrimental. We do need to keep this in mind, when we decide how much we want to use actual licensed samples for the vehicle radio stations.

### *Design risk:*

At this point, design is being driven by what is functional in the scripting language and engine. We are aware of this, and are proceeding with the plan to make the story fit the missions; vs. trying to make missions adapt to a story line. The current gameflow overview is specific enough to use as a guideline, and flexible enough to adapt to proven gameplay. There is still some time needed to assess exactly what we can, and eventually will be able to script as missions. It is for that reason that we are starting with an all inclusive single mission script that will incorporate all of the types of mechanics we will need in different individual missions.

### *Testing risk:*

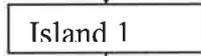
The game is big and complicated. There is a lot that they player can do, and there will be a lot that needs to be happening, and be tracked even when the player is not doing anything. A QA plan should be made before this project reaches the Second Playable milestone. The team will address, test, and regress known bugs, and make Rockstar aware of the progress in the area of debugging, but will be unable to thoroughly test on their own.

The following pages show the gameflow overview as discussed in the 12/9 - 12/10 meetings, as well as the timeline that this game will be completed during.

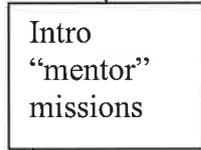




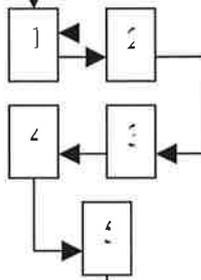
Main character is to pick up his mentor/partner at the airport on Island 3. Introduces the character to driving.



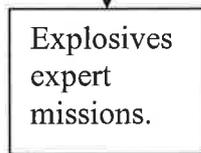
The first Island that the character will have full access to.



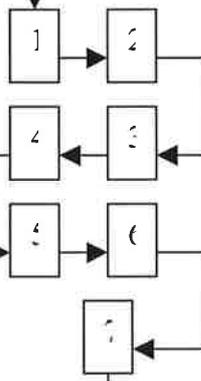
These first missions set up the entire game story. They are intro missions with the aid/direction of the main character's mentor and partner in crime.



These five intro missions will introduce the player to weapons, car chases, the spray paint shop, and other basic objectives. At the end of these missions, the player will find his mentor and partner murdered, and their money missing. This will set up the rest of the game as a quest for answers, and payback for the main character, while he searches for his money, and who killed his friend.

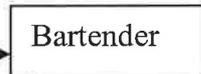
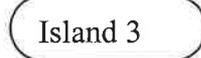


The main character is lead to an 8 ball like explosives expert, after his friend is killed by a car bomb. The expert will give the player missions.

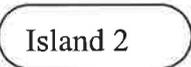
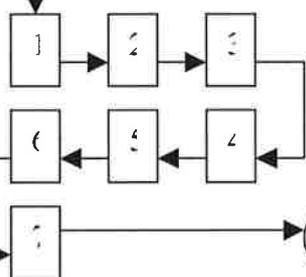


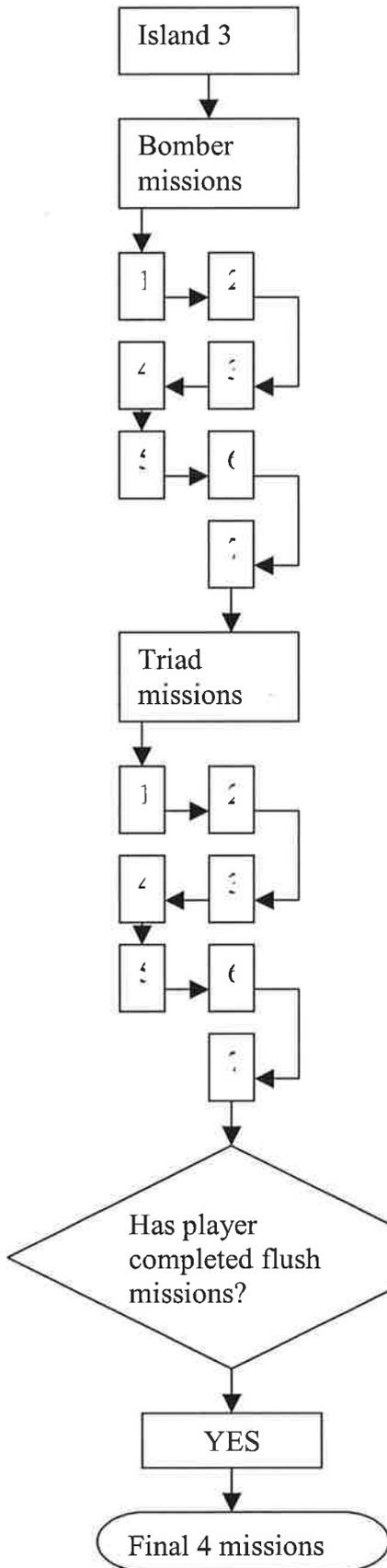
After the 4<sup>th</sup> explosives expert mission, the player is introduced to a bartender character, that will give him more missions and more clues. At this point, the player has a choice between two "connections" that they can get jobs from.

If the player completes the explosive expert's missions, they will be given a clue that opens the map to Island 3, where they will supposedly find the person who rigged the car to explode.



The player can get many jobs and information from the loose lipped bartender, who will also introduce them to non-essential missions, if they have not stumbled on them already. The bartender missions are linear, but at this point, the player can switch between these, the explosives expert missions, and possibly Island 3.





On Island 3 the player chases the bomb rigger to his shop and must kill him or be killed.

Before the player can investigate the shop and island thoroughly, they are mistaken for the bomb rigger, and are given missions under their stolen identity.

By the 6<sup>th</sup> mission, the player begins working for the Triads who promise to introduce them to the mastermind behind the last “jackpot car bomb job”, which leads the player to believe that they will find the murderer and their money through the Triad connection. If the player does one more mission they will be in a car chase after someone recognizes that they are not the real bomb rigger.

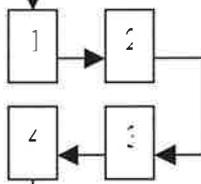
The player will still be able to do work for the Triads, and of a wider variety, they trust and respect the main character, and do not really care who he is. The player sees this as the way to find their enemy, while making some money along the way.

At the end of the Triad missions, the resulting gameflow will depend on whether or not the player has fully explored Island 2. If they have, then they will be introduced to the “boss” who will be the crux of the final 4 payback missions. Otherwise, the Triad connection will turn out to be a false lead, and the player must find the main enemy via the Island 2 end missions.

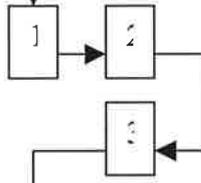


Island 2

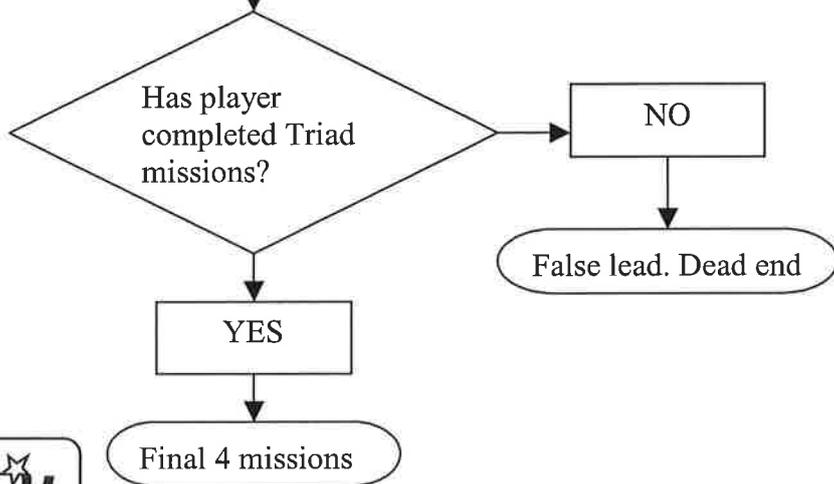
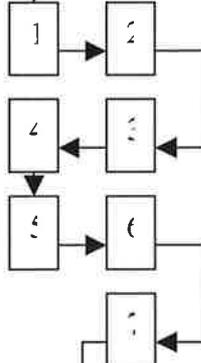
Mob missions



Columbian missions



Flush missions



Island 2 missions start with a tip from the bartender that leads the main character to the mob, as the bartender is killed and the player traces it to a member of the mob.

Four mob missions lead the player to the actual murderer, who is part of the Columbian cartel.

The player must infiltrate the cartel, as a mob recommended contractor, to find which Columbian is the murderer, and has their money.

At this point, the player should feel they know who their true enemy is. They will have a series of missions to annoy, aggravate, and eventually “flush” out their extremely angered enemy, leaving them open for revenge. At this point, the game flow can provide a different ending, depending on whether or not the player has explored the other islands fully. If they have, then the “boss” that they have flushed out, will be the person that killed their friend and has their money. If the player has not explored Island 3 fully, then this series of “flush” missions will end as a false lead, with the player merely upsetting the wrong crime boss along the way.



screens after the pause screen to show all of these stats, taking away from the quick update feature that this screen should provide.

#### *Single Player:*

The core functionality of this engine is in, but the mission scripting still needs evaluation and testing. There were originally plans of a pager alerting the player of missions. We have not yet seen pager functionality in-game. Our plan is to make the story mission assignment, location dependent, much like GTA3, you need to travel to a blue zone to get a mission from the person in that area. Side missions can come from telephone booths, as done in GTA2. Finally, vehicle specific missions (taxi, ambulance), can occur when the player gets into those vehicles.

The “blue zone” mission assignment would also involve the inclusion of interior cut-away views of buildings as previously discussed. The idea is that a player would go to the blue area; the screen would fade out, then back in to a single screen pre-drawn room, with scripted top-down characters and dialogue. With around 5 per island there can be approximately 15 of these “rooms”

#### *Multiplayer:*

At this stage no multiplayer functionality exists. We plan to do 10 multiplayer missions for 2 player link play. Some examples are: capture the flag, deathmatch, demolition derby, city circuit (from original design). The multiplayer missions will be done on isolated areas of the 3 main single player maps. This will help with the player’s familiarity of the environments, as well as eliminate cart space problems that creating new maps and art for those maps would cause.

#### *Rampages:*

We have not seen evidence of rampage functionality, but this should be fairly straightforward. They will be called rampages, but these missions will resemble the Frenzies from GTA2, more than rampages from GTA3, due to the top down perspective.

#### *Special vehicle missions:*

These do not appear to exist in the current engine, but are something we plan to do as well. Rather than committing to all 4 (police car, fire truck, ambulance, taxi), we plan on testing which ones would work the best and pick the best 2. For example, the taxi and ambulance are basically performing the same vehicle function. Potential problems with a fire truck, is its size on the AGB screen, as well as the other sprites needed to show its functionality (water, fire)

#### *Hidden packages:*

No evidence of these pickups in the current version, and this can be a simple GTA pickup that we count as collected, much like the (GTA2) pickup in the PSOne GTA2.

#### *Stunts:*

After further review of the current state of stunts in the game, we would like to abandon that idea at this time. With a top-down, 3d engine, it is difficult to see inclines, and what



might be a ramp. Due to the screen size on the AGB, the lead time for sight of an upcoming ramp is diminished as well. We would be opening the door to many other collision problems as well, dependent on speed, ramp size, surrounding objects, and vehicle type. The risk vs. reward in this area does not seem beneficial to make this a priority.

*SFX/Music:*

A large amount of cart space was originally allocated for sampled sound and music. If it is possible to use Rockstar's library of license music in this tile, sound may take more than our normally allocated budget of 1 MB. We will be replacing the current music driver with our own.

*Controls:*

Below is the proposed revised control scheme, major changes include the change of pedestrian directional movement, and the elimination of the strafe mode:

Controls (on foot)

D-pad tap	Turn L/R/U/D
D-Pad press	Move L/R/U/D
A	Punch/fire weapon
B	Sprint
L	Enter vehicle
R	Jump
Select	Change weapon
Start	Pause/Menu
L+R	Not used

Controls (In Vehicle)

D-pad L/R	Steer car
A	Accelerate
B	Brake/Reverse
L	Exit vehicle
R	Fire weapon
A+B	Hand Brake
Select	Change Weapon
D-pad U	Horn/Sirens
D-pad D	Change radio station
Hold Select + press Start	Begin/cancel Vehicle mission
Start	Pause/Menu

